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DEPARTMENT OF THE INTERIOR
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MOUNTAINEERING
IN THE
ROCKY MOUNTAIN NATIONAL PARK

134177

Compiled by

ROGER W. TOLL

FROM THE RECORDS OF THE COLORADO MOUNTAIN CLUB FOR THE BENEFIT OF VISITORS TO THE ROCKY MOUNTAIN NATIONAL PARK

and

Edited by

ROBERT STERLING YARD

Chief, Educational Division, National Park Service

WASHINGTON
GOVERNMENT PRINTING OFFICE
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PROVO, UTAH

"Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop off like Autumn leaves."

JOHN MUIR.

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Photograph by W. T. Lee.

LONGS PEAK AND CHASM LAKE.

BY WAY OF INTRODUCTION.

This is a Nation of outdoor lovers; it has yet to become a Nation of mountain lovers. For many years the high, rolling plateau from which rises the majestic Front Range of the Rocky Mountains in Colorado has been the resort of increasing summer thousands, but few, indeed, ventured into the fastnesses of the mountains.

When plateau and mountains both became the Rocky Mountain National Park in 1915, the popularity of the neighborhood increased with extraordinary rapidity; the normal attendance of 31,000 in 1915 became 51,000 in 1916 and 117,000 in 1917. Attention became centered upon the snowy mountains which Congress dignified as typical of the Rockies' noblest heights, and the desire to enter them began to possess those who had been content to view them from the plains; thousands of new visitors were attracted by their sudden fame. Mountaineering of the kind which is enjoyable to the unaccustomed has become popular. Increasing thousands yearly are now tasting of a new joy and yet one which is as old as man.

Fortunately there existed, to meet this new need, a few men and women to whom these mountains were old and familiar friends. Fortunately these men and women, proselyters of nature, were inspired to bring all men and women into the fellowship of the wild. This book is a compilation of experiences of the Colorado Mountain Club which cover many years of climbing these very mountains. Its purpose is to offset in some measure the many years of inexperience of those who come new to the mountains. If it will lessen the hardship of new climbers until experience shows them that there is no hardship, but in its stead vigorous nerves, bounding health, inspiration, and a rare communion with nature, its object and the hope of the club's members will be fulfilled.

The immediate purpose of the book is to familiarize the visitor with the Rocky Mountain National Park. But the arbitrary boundaries of the park will no more confine the activities of the ardent climber than they define the natural area of the region. Nature intended the Rocky Mountain National Park to include the superlative divide as far south as Arapaho Pass, as well as some miles of the Medicine Bow or Never Summer Range west of the Grand River;

and all this country, naturally tributary to the park as its center of approach, and within easy range of the mountaineering activities of its visitors, has been included in this book.

These mountains are peculiarly adapted to the vacation needs of persons engaged in exacting occupations. The park is remarkably accessible to large centers of population and to the east generally; and, once there, the visitor may enter the very heart of its lofty wilderness with little expense of time and effort. Rolling up from the west in easy slopes, the mountains drop abruptly thousands of feet upon the east to the plateaus of large summer population. Between the knees of their precipices are wild gardens of indescribable grandeur. Having once climbed their heights, the visitor finds peak after peak accessible with comparatively small additional exertion.

With increasing appropriations, the National Park Service will rapidly open the high places by trails and render mountaineering comfortable with shelters and rest houses.

The earlier mountaineering of most persons will be on horseback; general experience and most of the great places will be easily and fully enjoyed in this way. Many always will do their mountaineering on horseback, while others will pass on to the supreme pleasure of the hiker and the scaler of summits. All kinds and degrees of mountaineers will find the experiences related in this book invaluable. It has a message for the casual adventurer of a day, the horseback rider, the wearied worker of the city seeking renewal of vigor, the ambitious amateur, and the skilled climber of long experience.

Whatever its kind and degree, mountaineering is the vacation experience which, above all others, fits man and woman to return to life's toils and problems with perspective, endurance, and steady nerve.

ROBERT STERLING YARD.

FOREWORD.

This book is offered with the hope that it may prove of use or interest to those who already know the mountains and perhaps stimulate the interest of others who love the great out-of-doors, and help them to obtain a greater degree of pleasure and benefit from the mountains than they would otherwise receive. One reason that the beckoning peaks are not more often visited is because of the difficulty of obtaining reliable information regarding their approach.

Because of the necessity of placing some arbitrary limit upon the scope of this book, we have first limited the region to be considered, and second, have limited the peaks to be discussed to those exceeding 11,000 feet in elevation. This limit allows us to include practically all peaks above timberline. Detailed information regarding the lesser peaks is not so difficult to obtain. We have been forced to exclude almost everything but the barest reference to the beautiful streams, waterfalls, lakes, and forests that abound throughout the region. These beauty spots offer great attractions to those who do not hear the call of the peaks, and serve to furnish an added measure of pleasure to those who make the pilgrimage to the lofty shrine of the "templed hills." Interesting and useful descriptions and logs of the trails in the park are contained in the booklet entitled "The Geologic Story of the Rocky Mountain National Park," by Willis T. Lee. (See pages 45–83.)

Mountain climbing is by no means a new or novel form of recreation. Switzerland and other mountainous areas have annually attracted thousands of visitors and certain localities of our own country have been visited each year by those whose love of the outdoor life leads them into the unfrequented places.

The number of people who choose this form of pleasure is increasing each year, and there seems to be little doubt that it will and should increase as our mountain areas become more easily accessible to those of moderate means and those who have only a limited time to spare from other activities of life.

Mountain climbing does and should appeal to men and women who are sound of limb, mentally alert, and appreciative of the beauties and variety that nature offers in such profusion.

In this book an attempt will be made to suggest the most suitable equipment and clothing, but the fact remains that mountain climbing as a pastime requires less expensive equipment and paraphernalia than almost any other form of sport. The oldest and stoutest clothes one happens to possess are about all the necessary outfit needed. Food is simplified rather than elaborated. One furnishes his own motive power, and the expense of a trip may thus be kept to a minimum.

Mountain climbing creates in one a desire to know more about natural sciences, such as flower, plant and tree life, bird and animal life, mineralogy, geology, and almost every other form of nature study. The more knowledge one has on these subjects or any one of them, the more pleasure he finds in trips into nature's workshop.

A climb in the mountains builds up one's strength and adds new thoughts, new interests, and new information. It gives one a feeling of accomplishment in the very fact of having overcome the difficulties that intervened between the foot of the mountain and its summit and it affords many pleasant recollections for the afterdays.

In the development of an increasing interest in mountaineering among the youth of our country, lies an opportunity for a tremendous moral and physical gain to our Nation.

Mountaineering, in its broader sense, promotes the health and strength of the body, it teaches self-reliance, determination, presence of mind, necessity for individual thought and action, pride of accomplishment, fearlessness, endurance, helpful cooperation, loyalty, patriotism, the love of an unselfish freedom, and many other qualities that make for sturdy manhood and womanhood.

In the open, one learns the character of his companions with more rapidity and certainty than in the more conventional life of cities. A friend is defined as one with whom you would like to go camping again. Strong and weak characteristics rapidly develop. Selfishness can not be hidden. True and lasting friendship is often built up in a short time.

ROGER W. TOLL.

MOUNTAINEERING IN THE ROCKY MOUNTAIN NATIONAL PARK.

PART 1.

SUGGESTIONS, NOTES, AND INFORMATION.

The word mountaineer suggests to many persons one who has acquired proficiency in scaling almost inaccessible peaks. It is here used in a much more general sense, and is intended to include all those who find pleasure and benefit from visits to mountainous areas and who have made, or wish to make, more intimate friendships with mountains and peaks. The number of such mountaineers is legion.

The Rocky Mountain National Park and the areas adjoining it offer many inducements to mountain lovers. The accessibility of the area puts it within the reach of thousands. Accommodation is offered to suit all varieties of taste and purse. The peaks vary from low timbered hills up to the barren summits of the high peaks; the loftiest is Longs Peak, 14,255 feet above sea level. Most of the mountains are easy of access or have at least one route that presents no difficulties. A few of the summits may be reached on horseback. On the other hand, the climber who delights in steep and difficult routes will find unlimited possibilities awaiting him, for many of the peaks have one or more sides that are precipitous and from these sides the peaks are difficult if not impossible of access.

The scenery is greatly diversified. One finds large areas of forest, tall superb pines, spruce and fir; interspersed in the forests are flat, open, grassy meadows, and higher up one finds vast plateaus above timberline with a variety of plant life, and then come barren fields of rocks, almost devoid of life, and then great rugged peaks, bristling with crags and walled by precipices.

The life history of a river is clearly written. From the lower edge of a snow field comes a small trickle; farther down among the rocks other rivulets join it and it grows and grows; laughing and leaping it plunges down the valley, over waterfalls, through wooded valleys, lapping the roots of trees, refreshing the flowers on the bank, furnishing a home for the darting trout and forming an important

factor in most plant and animal life. Strung along the stream, like jewels on a necklace, are the mirrored lakes, large and small, catching the reflection of sky and cloud, peak and forest. As the stream winds its way unfalteringly down the valley it joins more and still more of its kind, and by the time the lower valleys are reached a river is formed, and with a last salute to its parental hills it starts on its mission to the world beyond.

The national park is a sanctuary to animal life. There are few places in the country where one has a better chance to see the Bighorn, or mountain sheep, in his chosen home; coyotes sing nightly serenades, and smaller animals such as woodchucks, squirrels, and chipmunks are frequently seen. Many animals live in the region, but keep very successfully away from visitors, who see only their footprints or their handiwork. Deer, black bear, mountain lions, bobcats and beaver are present, but rarely seen.

Bird life is plentiful and many varieties are found, as one passes through the various zones from the valleys to the peaks.

The wealth of wild flowers is a cause of constant delight and one does not have to be a botanist to love and appreciate them. In all seasons, and in all localities, they welcome the visitor. Hundreds and hundreds of varieties and a profusion of blossoms border the trails and bedeck the hillsides.

When one considers the use and the development of the mountainous areas of other countries, it is surprising that those of our own country have not created more interest. It is certain that a much greater number of American tourists will be drawn to this gigantic wilderness of lofty peaks, steep snow fields, glaciers, romantic valleys and gorges, frozen lakes and precipices as soon as the beauty of the ever-changing scenery is more widely known and when the facilities for the tourists are further increased.

THE ROCKY MOUNTAIN NATIONAL PARK.

The Rocky Mountain National Park was created by act of Congress, January 26, 1915, and enlarged by a subsequent act of Congress, February 14, 1917. It has an area of 398 square miles, or about 255,000 acres. It includes about 29 miles of the Continental Divide and large areas on both the Atlantic and Pacific slopes. It includes parts of Larimer, Boulder, and Grand Counties.

It is under the control and supervision of the National Park Service, Department of the Interior. The local administration is carried on by a superintendent and a number of park rangers. The address of the superintendent is Estes Park, Colo.

The department has issued certain desirable rules and regulations for the government of the park, which relate to the protection of

LONGS PEAK FROM THE TWIN SISTERS, LOOKING ACROSS TAHOSA VALLEY.

The peaks from left to right are Mount Meeker, Longs Peak, and Mount Lady Washington.

Photograph by Wiswall Brothers.

TIMBERLINE CABIN.

Photograph by G. H. Harvey, jr.

BOULDER FIELD AND THE KEYHOLE.

Photograph by Clark Blickensderfer.

THE KEYHOLE.

LONGS PEAK TRAIL.

animal and plant life, regulation of camping, care of fires and prevention of forest fires, prohibition of firearms within the park, careful use of automobiles and similar subjects. The regulations are not made at all burdensome to anyone who wishes to use the park in ordinary ways and with due regard to the rights of others.

Copies of the rules and regulations, a circular of general information, published each year, and additional information and literature may be obtained upon request from the superintendent of the park or from the National Park Service, Washington, D. C.

SHELTER CABINS.

There are several shelter cabins in the Rocky Mountain National Park. One is on Fall River, southwest of Mount Chapin. A second cabin is at Poudre Lakes, near Milner Pass, on the trail from Fall River to Grand Lake. A third cabin is on the North Inlet trail from Grand Lake to Flattop Mountain. A fourth cabin is on the Cache la Poudre River near the north boundary line of the national park.

These cabins have camp stoves or fireplaces. Each has some cooking equipment. They are maintained by the National Park Service for use by the public, and are intended to provide shelter in time of need. They are not intended to be used as permanent camps, and all persons desiring shelter have equal rights to them. Parties using these cabins should take particular care to leave them clean and in good condition for the next party. The prospector's motto "Keep the woodbox full or the fire out" applies here.

RANGER STATIONS.

The Mill Creek Ranger Station is on the Flattop trail; the Pole Creek Ranger Station is about 3 miles south of Grand Lake. Another ranger station is a mile northwest of Longs Peak Inn at the base of Estes Cone. These are the homes of the rangers, who are glad to extend assistance or courtesies to visitors.

EMERGENCY TELEPHONES.

Telephone lines extend between Estes Park and Grand Lake, along the Flattop trail and also along the Fall River road and trail. Telephones will be found at 5-mile intervals along these lines for use by the public in cases of emergency.

NATIONAL FORESTS.

The timbered areas adjacent to and outside of the national park are under the supervision and control of the United States Forest

Service, which, in turn, is under the direction of the Secretary of Agriculture. For convenience of administration, the timbered portions of a State are divided into separate forests, each with a supervisor in charge and forest rangers as assistants. Part of the Medicine Bow Range, the country around Monarch Lake, and in general most of the land in the area under consideration lying on the western slope (not included in the national park) is in the Arapaho National Forest, while that on the eastern slope (not included in the national park) is in the Colorado National Forest.

Information regarding the regulations and management of the land under the control of the Forest Service can be obtained from the forest supervisors, or from the district forester's office in Denver, or from the United States Forest Service, Washington, D. C.

HOW TO REACH THE ROCKY MOUNTAIN NATIONAL PARK.

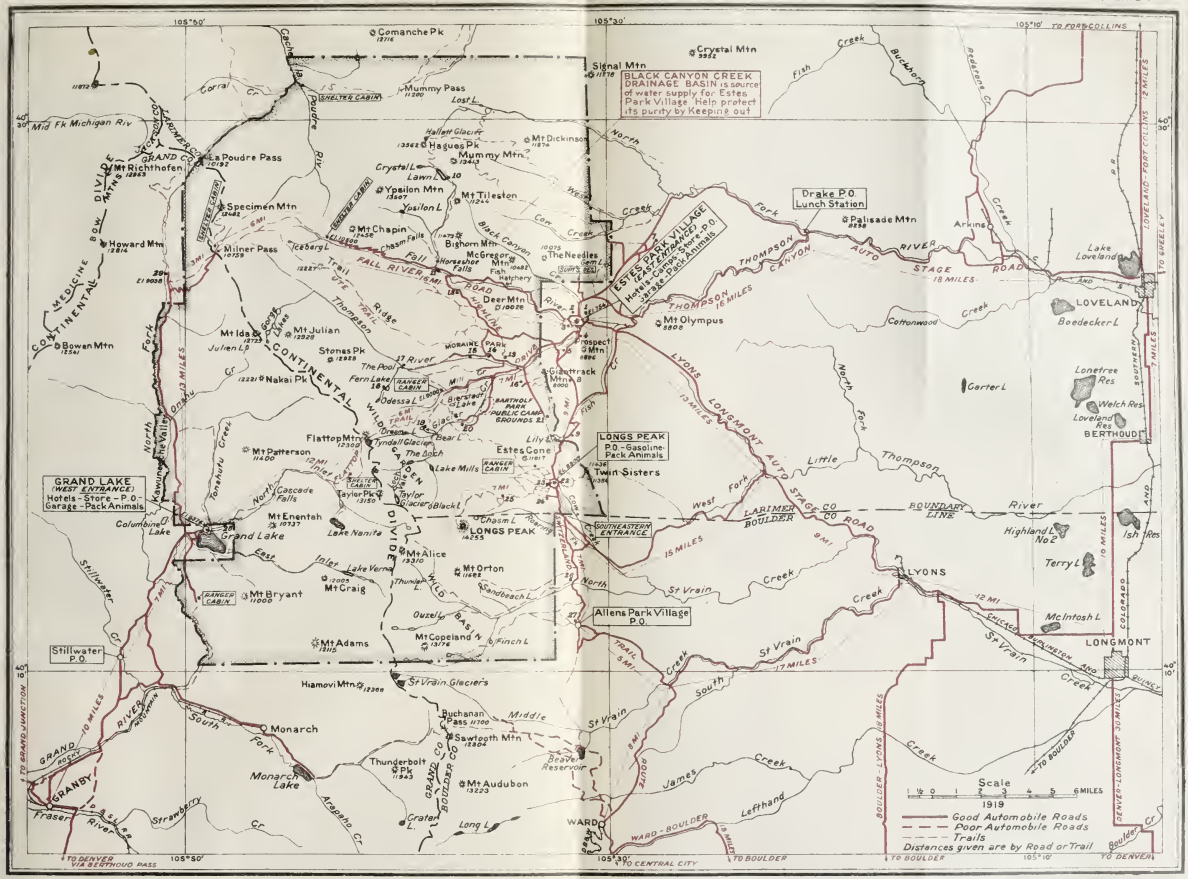
The Rocky Mountain National Park is naturally approached through Denver. Four railroads, the Colorado & Southern, the Chicago, Burlington & Quincy, the Union Pacific, and the Denver, Boulder & Western, carry passengers to points convenient of access by automobile stage to Estes Park village, the eastern gateway. The Colorado & Southern has stations at Loveland, Longmont, and Fort Collins; the Chicago, Burlington & Quincy stops at Loveland, Longmont, Lyons, and Fort Collins; the Union Pacific stops at Fort Collins; the Denver, Boulder & Western stops at Ward. The west side of the park is reached from Denver by way of Granby, on the Denver & Salt Lake Railroad; from Granby stages run to Grand Lake, the western gateway.

Automobile stages cover 33 miles from Loveland to Estes Park, 35 miles from Longmont to Estes Park, 23 miles from Lyons to Estes Park, 32 miles from Ward to Estes Park, and 44 miles from Fort Collins to Estes Park; the fare is the same by all routes. From Estes Park visitors reach their various destinations by hotel and transportation bus or private conveyance.

The automobile run from Denver to Estes Park is 70 or 80 miles, according to the route chosen. The run will take from four to six hours.

The Rocky Mountain Parks Transportation Co. operates the auto stage lines to Estes Park from Denver, Ward, Longmont, Lyons, Loveland, and Fort Collins, and handles both passengers and freight.

The automobile portion of all routes to Estes Park are full of scenic beauty and variety of interest. Whether one goes by public or private conveyance, it is recommended that a circle trip be made, going in by one route and returning by another. For example, one may reach the park via Loveland, and thence by auto up the rugged



MAP OF ROCKY MOUNTAIN NATIONAL PARK

Note: Numbers on the map indicate the locations of the resorts and hotels bearing corresponding numbers, listed on page 105

canyon of the Big Thompson, and then make the return trip via the shorter "hill road" to Lyons.

The route that gives the most varied and closest views of the mountain peaks is the one via Ward, and is known as "The Switzerland Trail of America." Another good route is to go to Lyons and thence up the canyon of the South St. Vrain River, via Allens Park to Copeland Lodge, to Longs Peak Inn, and to Estes Park village. The regular stages do not run on this route, as it is 10 miles or more longer than the "Lyons Hill road," but it is a very beautiful and scenic route. In fact, every route has its peculiar charm and attraction.

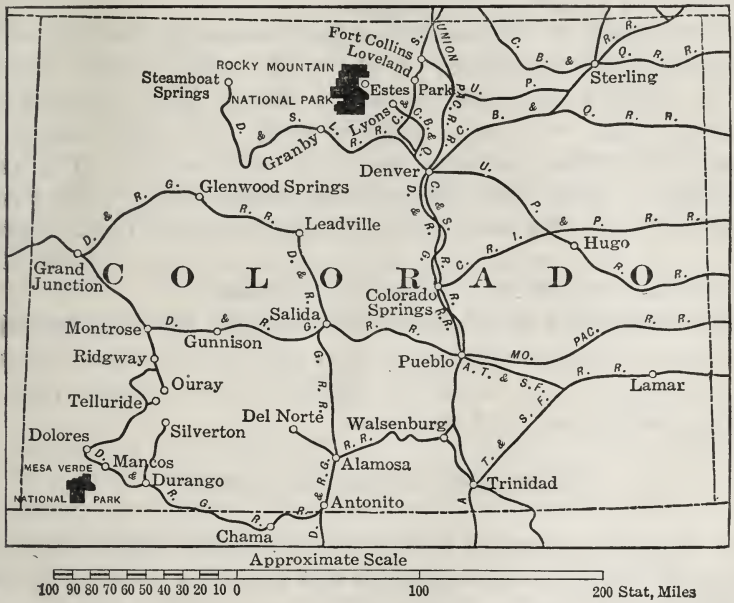


FIG. 1.—Map showing railroad routes to Rocky Mountain and Mesa Verde National Parks.

There are good garages at the railroad towns referred to above (except Ward).

ONE-DAY TRIPS.

Camping out is not an essential feature of mountain climbing in this region. One can usually reach the top of one or more of the nearer peaks and return to the hotel the same day. For example, from the hotels at the foot of Longs Peak one may climb Longs Peak in a day, though it is rather a long trip. One may also climb Mount Meeker or, more easily still, the Twin Sisters or Estes Cone. Starting from Estes Park, with an automobile, one may reach some peak of the Mummy Range and return the same day. A variety of one-day trips may be made from the lodge at Lawn Lake. Sprague's Hotel

is a good starting point, and several peaks may be reached in one-day trips from there. Timberline Cabin, on Longs Peak, greatly facilitates this climb by offering a suitable shelter for the night as high up on the peak as firewood is available. Fern Lake Lodge is beautifully located on the trail leading from Moraine Park up to Fern and Odessa Lakes. Several first-class climbs to high peaks of the Continental Divide can be made in one day from this delightful starting point.

With a little planning, and the occasional use of horses or an automobile, a party can take many one-day trips from Estes Park that are full of interest and variety. This is also true of most of the other starting points in this region.

The construction of Government-built mountain shelters can and doubtless will be continued. These cabins will simplify the problem of camping out, since at least a shelter and a stove will be provided, which will make possible trips with light packs. The problem of bedding, however, is not so easily solved. It is hardly practicable to equip such shelter cabins with bedding. Blankets are expensive in the first cost, and they might be carried off. Furthermore, no one has yet devised a bed that is suitable for repeated and frequent use without the care of an attendant.

The reluctance of most visitors to undertake any trip requiring a night spent in the open, accounts, more than any other one thing, for the unfrequented and unvisited regions of our national park and similar mountain areas of the State.

SUGGESTED SCHEDULE OF TRIPS.

The following itinerary is suggested for those that wish to avail themselves of hotel accommodations and avoid the necessity of camping out.

First. Climb Longs Peak. Start from one of the hotels at the foot of the peak and spend the night at Timberline Cabin. Arrange for a guide to go with you, or at least to meet you there the following morning. Climb the peak on the second day and return to your hotel that night.

Second. Take horses for a three to five day trip; the first day go up the Fall River road and trail and over to Poudre Lakes. Here make a detour to the so-called crater on the west side of Specimen Mountain. If an early start is made from Estes Park, and not too much time is spent at Specimen Mountain, you can reach Squeaky Bob's camp for the night. The Specimen Mountain trip can be made from Squeaky Bob's in a day if you find the trip across the range sufficient for the first day. The following day, ride down to Grand Lake in the morning, and spend the afternoon boating and

fishing. The following day ride up to North Inlet trail, over Flattop Mountain and back into Estes Park. This horseback trip can be done in three days, but an extra day or two should be allowed in case of bad weather or for some detour you may wish to make.

Third. Go to Fern Lake and climb Stones Peak or visit some of the small but beautiful lakes in the vicinity.

Fourth. Go to one of the hotels in Horseshoe Park and on to the lodge at Lawn Lake and spend a day or two visiting Hallett Glacier and the Mummy Range.

Fifth. Go to Copeland Lake Lodge or Allens Park and climb Meadow Mountain, which is not a high peak, but a good viewpoint.

Sixth. From Stapps Hotel climb Mount Audubon, then cross over Buchanan Pass to Monarch Lake. From here, return across the divide at Arapaho Pass, spend the night at Fourth of July Mines, and then climb the two Arapaho Peaks.

The above schedule covers the entire region in a general way and provides sufficient occupation for several weeks. It may be changed to meet the individual preferences; some parts may be omitted and others extended.

If you have a camping outfit and wish to spend a few nights in the open, some of the less accessible parts of the region may be visited.

CONTOUR MAP.

Accompanying this publication is a map of the Rocky Mountain National Park. This map covers the Longs Peak and a strip from the southern part of the Home Quadrangle maps published and for sale by the United States Geological Survey.

The scale of the map is approximately 2 miles to an inch. It is printed in four colors; the cultural features, such as roads, trails, towns, and buildings, as well as the lettering, are in black; the water features, such as streams and lakes, are in blue; the features of relief, such as mountains and valleys, are shown by brown contour lines, marked with the elevation above sea level. The contour interval is 100 feet. Roads, trails, shelter cabins, and ranger stations are emphasized by a red overprint.

The descriptions in this book refer frequently to this map, and the same nomenclature is followed. The map is based on plane-table surveys, made by triangulation from many peaks and other observation points. Contours and details are sketched in between points whose location and elevation are known. One should not expect absolute accuracy in all details, but in general the map is a trustworthy guide and is of such great value that it is indispensable to climbers and should always be carried on a trip.

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The Longs Peak and Home Quadrangle maps may be obtained from the superintendent at Estes Park and from stationers in Denver for 10 cents each. They may be mounted on cloth and dissected so as to fold conveniently and compactly, for about 50 cents per copy. The mounted map is recommended if it is to be used on many trips.

Named peaks (exceeding 11,000 feet in altitude) on the Longs Peak quadrangle in order of elevation.

[NOTE.—In the following list, the location of the peak is given, showing whether it is on the Continental Divide or on the Atlantic or Pacific slope.]

No.	Peak.	Elevation in feet.	Location.
1	Longs Peak	14,255	Atlantic.
2	Mount Meeker	13,911	Do.
3	Chiefs Head	13,579	Do.
4	Hagues Peak	13,562	Do.
5	Ypsilon Mountain	13,507	Do.
6	Arapaho Peak	13,506	Divide.
7	Mount Fairchild	13,502	Atlantic.
8	Pagoda	13,491	Do.
9	Mummy Mountain	13,413	Do.
10	Navajo Peak	13,406	Divide.
11	Storm Peak	13,335	Atlantic.
12	Mount Alice	13,310	Divide.
13	McHenrys Peak	13,300	Do.
14	Mount Lady Washington	13,269	Atlantic.
15	Mount Audubon	13,223	Do.
16	Mount Copeland	13,176	Do.
17	Taylor Peak	13,150	Divide.
18	Arikaree Peak	13,147	Do.
19	Ogalalla	13,147	Do.
20	Kiowa Peak	13,101	Atlantic.
21	Paiute Peak	13,082	Divide.
22	Mount Chiquita	13,052	Atlantic.
23	Mount Richthofen	12,953	Divide.
24	Stones Peak	12,928	Atlantic.
25	Mount Julian	12,928	Do.
26	Pawnee Peak	12,900	Divide.
27	Howard Mountain	12,814	Do.
28	Apache Peak	12,807	Pacific.
29	Mount Cirrus	12,804	Divide.
30	Mount Neva	12,800	Do.
31	Mount Nimbus	12,730	Pacific.
32	Hallett Peak	12,725	Divide.
33	Mount Cumulus	12,724	Do.
34	Mount Ida	12,700	Do.
35	Terra Tomah Peak	12,686	Atlantic.
36	Mount Achonee	12,656	Pacific.
37	Mahana Peak	12,629	Atlantic.
38	Thatchtop	12,600	Do.
39	Ouzel Peak	12,600	Divide.
40	Mount Albion	12,596	Atlantic.
41	Andrews Peak	12,564	Pacific.
42	Mount Dunraven	12,548	Atlantic.
43	Bowen Mountain	12,541	Pacific.
44	Lead Mountain	12,532	Divide.
45	Specimen Mountain	12,482	Do.
46	Otis Peak	12,478	Do.
47	Mount Chapin	12,458	Atlantic.
48	Tanima Peak	12,417	Do.
49	Baker Mountain	12,406	Pacific.
50	Nokhi Crags	12,400	Atlantic.
51	Parika Peak	12,400	Divide.
52	Trail Ridge	12,400	Atlantic.
53	Hiamovi Mountain	12,388	Pacific.
54	Watanga Mountain	12,381	Do.
55	Cascade Mountain	12,320	Do.
56	Sawtooth Mountain	12,304	Divide.
57	Flattop Mountain	12,300	Pacific.
58	Snowdrift Peak	12,280	Do.
59	Nakai Peak	12,221	Do.
60	Mount St. Vrain	12,162	Atlantic.
61	Mount Adams	12,115	Pacific.
62	Mount Craig	12,005	Do.
63	Thunderbolt Peak	11,943	Do.
64	Battle Mountain	11,930	Atlantic.

Named peaks (exceeding 11,000 feet in altitude) on the Longs Peak quadrangle in order of elevation—Continued.

No.	Peak.	Elevation in feet.	Location
65	Satanta Peak	11,885	Pacific.
66	Mount Dickinson	11,874	Atlantic.
67	Mount Bennay	11,781	Pacific.
68	Mount Irving Hale	11,747	Do.
69	Bearpaws Peaks	11,735	Atlantic.
70	Mount Neota	11,700	Divide.
71	Blue Ridge	11,355	Pacific.
72	Mount Orton	11,682	Atlantic.
73	Meadow Mountain	11,634	Do.
74	Red Mountain	11,505	Pacific.
75	Bighorn Mountain	11,473	Atlantic.
76	Bald Mountain	11,453	Do.
77	Seven Utes Mountain	11,438	Do.
78	Twin Sisters	11,436	Do.
79	Shipler Mountain	11,400	Pacific.
80	Mount Patterson	11,400	Do.
81	Porphyry Peaks	11,355	Do.
82	Mount Tileston	11,244	Atlantic.
83	Estes Cone	11,017	Do.
84	Mount Bryant	11,000	Pacific.

The exact elevation of some peaks in the above list is not shown on the map, and in such cases the elevation assumed is that of the next lower contour line. Such assumed elevations are usually accurate within 100 feet or less.

In addition to the above list, there are a number of peaks that are not named on the map, though some of them have more or less generally accepted local names.

The point of lowest elevation on the map is on the Thompson River, just below Estes Park, where the elevation is between 7,400 and 7,500 feet. The highest point is Longs Peak, 14,255 feet. The difference in elevation between these two points is about 6,800 feet, or over a mile and a quarter, measured vertically.

THE PASSES.

The following is a list of the seven passes over the Continental Divide that may be crossed on horseback. They are listed in order of location, along the Continental Divide, from north to south.

Name of pass.	Elevation.	Watersheds adjacent.
	Feet.	
Bowen Pass	11,500	North Platte River and North Fork of Grand River.
Lulu Pass	11,300	Cache la Poudre River and North Fork of Grand River.
La Poudre Pass	10,192	Cache la Poudre River and North Fork of Grand River.
Milner Pass	10,759	Cache la Poudre River and North Fork of Grand River.
Flattop Pass	12,300	Thompson River and North Inlet of Grand Lake
Buchanan Pass	11,700	St. Vrain River and South Fork of Grand River.
Arapaho Pass	11,906	North Boulder Creek and South Fork of Grand River.

All but two of these passes are at, or above, timberline.

At the present time there is no road for wagons or automobiles across the Continental Divide covered by the map. The Fall River

road, when completed, will cross the Divide at Milner Pass, which is the second lowest pass in the above list.

About 67 miles of the Continental Divide are included within the limits of the map.

GUIDES AND CAMPING FACILITIES.

To the transitory visitor, the expense of purchasing camping equipment is prohibitive. The national park authorities, however, grant concessions to qualified individuals, authorizing them to furnish or sell camping outfits to visitors at a fair and reasonable cost. These concessioners will furnish as much or as little as a party desires. They can furnish guides, saddle and pack animals, tents, camping equipment and all necessary articles, including provisions. The guides are examined as to their qualifications before being licensed.

The names of these concessioners can be obtained from the superintendent of the national park, at Estes Park.

CAMPING OUTFIT.

To some, camping out seems a hardship not to be undertaken if it can possibely be avoided. To others, however, a night out under the stars, far from human habitation, has a charm and a thrill that make it well worth while for the pleasure of the camp alone, if for no other reason. Very many persons to whom camping out does not seem attractive become, after an experience or two, ardent campers-out.

There are many peaks, high and remote, that can not be reached in a day from any available shelter. These are the summits that lure a mountain lover. Many climbs that make a long one-day trip are more easily accomplished if one night is spent in camp. When one intends to climb several peaks in one locality it is a great convenience to have a camp centrally located, and thus save the wearisome return to the nearest hotel for the night. For many reasons camping out is frequently necessary or advisable, and all who can should plan to take some camping trips. The discomforts are soon forgotten and the pleasures live long in the memory.

There are a hardy few who, on a two-day trip, dispense entirely with bedding, and spend the night by a camp fire. Their feeling is that one is not likely to sleep well in any case, so why bother with blankets. This is an experiment not to be recommended.

Mountain nights are very cold, and climbers should take along sleeping bags, even though they have to carry them as far as the camp or make use of a pack horse. One is less at the mercy of the

weather, and a blanket is welcome even on the warmest night. Fortunately night storms are not frequent.

If a pack horse is elected to membership in the party, the trip is freed from its greatest discomfort. One may then consider the advisability of taking along a small tent, particularly if the camp is to be occupied for more than one night.

When one has a long, hard climb planned for the following day, it is well to camp for the night at or near timberline. Collect the firewood and arrange the camp before darkness comes. Gather enough wood to keep the fire going all night, but plan to replenish the fuel once or twice during the night. A small fire is often better and safer than a large one and will burn nearly as long. Before starting a fire, scrape back the pine needles, or build the fire in a bare spot. Fire will creep in pine needles or similar material.

Do not build a large fire under the projecting branches of a tree.

Do not go to sleep until you know that the fire is safe for the night.

Do not leave camp in the morning until you are certain that the fire is out, and can not be rekindled by a wind.

Few cooking utensils are necessary. One can do much with an ordinary lard pail; a frying pan is a good addition, and of course other utensils are useful and facilitate the preparation of meals.

At night it is well to put provisions and small leather articles in a sack suspended from the limb of a tree, out of the reach of Mr. Porcupine.

CLOTHING.

For a trip to the high peaks in summer, dress about as you would in October at lower elevations. The exertion of a climb makes one warm, but the cold wind usually blowing on the summit, quickly chills the climber. It is best to carry the extra clothing, on the way up, and put it on when the top of the peak is reached.

On a trip of more than one day, remember that you may get soaked by rain and will be glad to have a change of clothing and dry shoes, in camp.

A suit of corduroy or other strong, heavy material that will keep out the wind or a light rain is usually needed. On a short one-day trip in midsummer, a suit of khaki or other light material may be worn instead of the heavier suit, if the weather is favorable. The lightest clothing often feels excessive during the climb, but the warmest clothing is frequently insufficient on the top of a peak, where a cold wind and snow may be encountered. A warm day quickly changes to a cold night and in case the return to camp may be delayed until after nightfall, warm clothing will be necessary. It is better to carry a coat on several trips, and not use it, than to be

in need of it once, and not have it. A warm coat weighs about three pounds. Numerous pockets will be found useful. A sweater may be of use as an extra garment.

Some men find knickerbocker breeches with knit leggings a good combination.

In general, select from the clothing that you already have those garments that are strong, durable and seem the most suitable. Wear them on a few one-day trips and only purchase such additional articles as you find to be desirable.

The hat should be light weight, broad-brimmed, and durable; one that will protect the wearer from sun and storm.

Shirts of flannel are preferable, but lighter material may be used.

It is better to wear summer underwear, as light clothing is preferable on the climb, and outer garments can be added for warmth on the summit.

Footwear is of the greatest importance. A pair of stout, heavy-soled shoes or boots, waterproofed, well broken in and comfortable, is best. High boots are preferable to shoes, as they offer more protection against rocks, but shoes and leggings can be used. Ordinary shoes are usually inadequate for long trips. Hobnails increase the durability of shoes and add to the safety on rocks. Hobnails of soft, malleable iron are preferable to those of hard steel. A good plan is to have an extra sole put on the boots as soon as they are broken in, and then add hobnails. If the soles are not thick, the nails will feel like lumps and will be uncomfortable.

Shoes that are waterproof are greatly preferable to those that are not. It is very difficult to obtain perfection in waterproofing. Several specially prepared oils are on the market, but bacon fat, lard or axle grease may be used. These oils or greases should be applied to the shoes when they are thoroughly dry, and frequent applications should be made to keep them waterproof. Particular attention should be given to seams and creases. These oils make the shoes soft as well as waterproof, and add to their comfort. Care should be used to dry shoes slowly, as they are easily injured by heat. The shoes must be extra large so that two pairs of socks can be worn. Personal preference as to footwear shows considerable variation.

It is advisable to wear two pairs of socks, both, or at least the outer pair, being of heavy wool, to keep the feet warm when wet, and to prevent chafing, blistering and bruising. Soaping the inside of the sock or using a liberal amount of talcum powder will also tend to prevent chafing or blistering.

A slicker, poncho, or other waterproof covering is frequently useful, though such garments are usually heavy. One should select the lightest weight that is available, weighing 2 or 3 pounds. Some prefer getting soaked to carrying rubber coats, feeling that they are only

a partial protection at the best. Afternoon showers are frequent, and are followed by a chill in the air.

Gloves are advisable for warmth and to protect the hands from being scratched or scraped on the rocks. They are useful about camp when firewood is being gathered, and will protect the hands on many occasions.

EQUIPMENT.

PACK SACK.

It is usually better to carry a light pack sack, rather than to leave too much at camp or to have the hands encumbered on the climb. Individual tastes vary on this subject. A small pack sack with shoulder straps does not inconvenience one appreciably and the weight is scarcely felt if less than ten pounds. It does not restrict the breathing as does a strap over one shoulder and across the chest. The pack sack will weigh about a pound. It can be used to carry one's coat, poncho, lunch, kodak and minor articles and still leave the hands free for use in climbing.

FIELD GLASSES.

A good pair of binoculars or field glasses adds considerably to the view from the top of the peak, and often facilitates the selection of a route by enabling a closer examination of the character of the country to be traversed. It is useful in finding and watching mountain sheep and other game. The additional weight may be burdensome, but in a party of several people, where the pack carried by each member is light, a pair of field glasses can be carried and will add interest to the trip.

COMPASS.

A small light-weight compass will assist in correctly orienting a map, either on the summit or elsewhere, and may prove of great value in case of rainy weather or dense fog. Though not often needed, it should always be carried, since its weight is negligible. Select a compass in which the needle can be lifted from the pivot. It should always be carried in this position to prevent damaging the delicate pivot, as this would decrease the accuracy of the compass. An "engineer's" compass, graduated in degrees, is preferable to a "mariner's" compass, divided into 32 "points of the compass." The magnetic variation in this portion of Colorado is 15 degrees east of north, therefore when the compass is correctly set, the north end of the needle will point 15 degrees east of north, or about one-third of the way from north toward northeast.

ICE AXE.

The mountains of Colorado have so little snow on their slopes during July and August that ordinarily an ice axe will be found of very little use. If, however, one is exploring any of the small glaciers or steep snow fields, it would be desirable to take along a light ice axe or some other means of cutting steps in steep slopes. It is dangerous to cross any of the steeper snow slopes at any time of the year without some implement to cut steps and also a good steel-pointed staff to be used as a brake in sliding down the snow fields. Even then caution should be used, as one may be badly injured by being hurled into the piles of rock at the foot of the snow. A long, narrow rock may sometimes be used to break the speed of the descent, but these rocks are difficult to manage and will be useless if the speed once gets beyond control.

CLIMBERS' ROPE.

On most climbs in this region it is entirely unnecessary that the members of the party be roped together. A short piece of rope, say 10 or 20 feet long, of light weight, carried by some member of the party is a good precaution, in case any difficult scramble should be encountered. This is usually sufficient. The only condition under which a climbers' rope would be useful would be on a steep snow or ice field when only one member of the party has a suitable ice axe or staff, or else on a difficult climb when some members needed much more assistance than the others. If a rope is used there should be from three to five persons on it, with intermediate intervals of from 15 to 20 feet. The loop to be used in tying the members together is the so-called "guides' knot." It is made by doubling the rope and tying a plain knot with the doubled end. As the party moves along, the rope must be kept taut, so that if one of the party slips the others may immediately check his fall or slide. The guide should take the first place on the rope, in the ascent, the weakest member of the party should be placed next to him, and a good climber should be at the end of the rope. In descending the order should be reversed.

MINOR ARTICLES.

Dark glasses are not necessary unless there is much snow. Some people, however, find them a relief from glare on sunny days. Dark glasses are a real necessity if a long trip is to be taken over snow on a bright sunny day. Snow-blindness, following long exposure, is painful and sometimes serious.

Face cream is good in case of sunburn, and can be used as a preventive as well as a cure. One burns much more quickly on the high

Upper left: Crevasse in Arapaho Glacier.
Upper right: The Pit, Arapaho Glacier.
Lower: The Arapahos and the Glacier.
Photographs by Clark Blickensderfer.

Upper left: Taylor Glacier.
Photograph by G. H. Harvey, jr.

Upper right: Andrews Glacier.
Photograph by Geo. C. Barnard.

Lower: Part of Sprague Glacier.
Photograph by W. T. Lee.

peaks than at lower altitudes, because the sunlight passes through less atmosphere and is therefore more intense. Sunburn is increased by the reflection from rocks or snow and also by wind.

A camera or kodak is a desirable addition. If there are several persons in the party, the weight of the various packs may be adjusted so that the owner of the camera is not penalized. A No. 3-A kodak weighs slightly over 3 pounds.

A whistle may be useful for communicating with others in the party, and a code should be agreed upon in advance.

A drinking cup is often useful An ordinary tin cup, hung on one's belt, it better than the various folding or collapsible cups.

A canteen is sometimes desirable, depending upon the locality and season of the year. A canteen holding nearly a quart, weighs, when filled, about 3 pounds.

A piece of candle should always be carried, as the trip may unintentionally be prolonged until after dark. One can always improvise a wind-shield and perhaps a reflector. A small pail or can, if available, is excellent for this purpose.

A barometer is rarely needed when one has an accurate map of the region. However, if a barometer is available, it will add to the interest of a trip by furnishing information as to the rate of progress and enables one to study the zones of plant and animal life with more accuracy.

A weight of 20 pounds or more is a decided hindrance on a climb and may become quite uncomfortable, if the pack is not suitable. On short, one-day trips, one can often go without carrying anything, but on trips to the high peaks, one should be more completely equipped, to provide for unexpected contingencies.

If the trip includes camping out over night, or if it extends over several days, then more equipment must be taken and bedding, cooking utensils and provisions will be needed.

Night clothing can be dispensed with, since preparation for the night usually consists of putting on all the dry clothing available, and taking off only boots and hat.

A hot-water bottle is an item not frequently considered, but for warming the sleeping bag on a cold night it is much more convenient than hot stones. An attachment consisting of a perforated rubber ring, transforms it into a portable shower bath.

CHECK LIST OF CLOTHING AND EQUIPMENT.

The clothing and equipment that should be taken will vary greatly with the character of the trip. Many articles can and should be taken on a camping trip, when a team is used, that would be left at home, for a pack-horse trip, and the weight of equipment will be still further reduced on a walking trip, and the amount to be taken

will, of course, be less on short trips than on long ones. "Go light but right" is a good motto. Take enough and no more. The Latin word for baggage "impedimenta," is very expressive. Excess weight increases delays, inconveniences and fatigue.

The following list is given with the suggestion that before a trip you check it over and make sure that you have not forgotten something that you intended to take. Adapt your outfit to your trip and take only the necessary articles.

Clothing (men's):

Suit of corduroy or other stout, warm material.
Suit of khaki or light-weight material.
A hat that will stand the weather and afford protection from the sun.
Change of shirts, flannel or light-weight material.
Change of underwear.
Change of socks, preferably woolen, two pair.
Mountain boots or stout shoes.
Pair of light shoes for change in camp.
Belt.
Slicker, poncho or light-weight rubber coat.
Gloves.

Bedding:

Sleeping bag with one pair (or more) of good, woolen blankets.
Waterproof cover around bedding, not less than 4 by 6 feet in size.
Small, light pillow.

Toilet articles:

Soap, towel, brush, comb, toothbrush and paste, razor, nail scissors, toilet paper, talcum powder, lip stick, face cream, adhesive tape, absorbent cotton, bandaging, medicine and first-aid kit, safety pins, hot-water bottle, extra handkerchiefs.

Food and cooking utensils:

Food supplies and other edibles such as nuts, raisins, chocolate and candy.
Utensils, such as knife, fork, spoon, cup, frying pan, stewpan, water bucket.

Miscellaneous articles:

Tent or other protection from the weather.
Candles.
Knapsack.
Weatherproof match box and matches.
Pipe, tobacco or other smoker's supplies.
Pocket knife.
United States Geological Survey or other maps.
Memorandum book, pencil.
Mosquito netting.
Kodak and films.
String, cord, and rope.
Compass.
Field glasses.
Small whetstone.
Nail set (for removing nail points from shoes).
Watch.
Purse.

HEALTH AND HYGIENE.

Climbing is usually beneficial to health. It stimulates the action of heart and lungs. The large quantities of pure air and pure water that are taken into the system during a climb are the best kind of medicine. People with weak hearts, lung trouble, or other ailments, should not undertake the fatiguing trips without securing proper medical advice. There are many lesser heights that offer healthful exercise with only moderate exertion. Short trips are the best possible preparation for longer ones.

One can stand exposure to wind and weather without injury while one is climbing, while perspiration is free, the body warm and heart and lungs active. When resting, however, the body should be protected from cold and chill. Upon the return to camp, wet clothes and should be changed or promptly dried out.

Bathing the feet or body in cold water, after a trip often will ward off injurious effects of exposure. Warm bathing should be avoided when there is any chance of a subsequent chill.

If the feet become tired and sore on a trip, bathing in cold water is refreshing. Blisters on the feet may be partly or wholly avoided by wearing two pairs of wool stockings, by putting talcum powder or some other lubricant in the shoes, or by protecting the toes with strips of adhesive tape. Blisters or sores that have formed may be protected from further friction by adhesive tape. A roll of this tape should always be carried; it has many uses and may be employed to repair torn clothes as well as bodily damages.

Medical assistance is obtainable only in the larger communities, and a party going into unfrequented regions should take along a small first-aid kit and the usual simple remedies. If one member of the party has some medical knowledge, or a familiarity with first-aid principles, it will be a protection to the others.

Climbing increases the rate and depth of breathing, and the rate and violence of the heart action. This should not be carried to an extreme, as a strain or injury might result. Do not spurt. Take such a rate that the heart action, though increased, will be kept at a nearly constant rate. This gives "second wind." A slow rate of progress, with no halts, results in better heart action than the "rush and stop, rush and stop" method. If a person can not maintain a slow gait without frequent rests he should go no further, as it is probable that, even though he might reach the summit, the return trip would be too fatiguing.

Avoid drinking an excessive amount of the ice-cold mountain water at any one time. It absorbs internal heat, produces chills, and is injurious when taken in too large quantities. It is, of course,

necessary and desirable to drink abundantly, but extremely cold water should be taken at intervals and in small quantities.

The water of streams should be avoided if it is known that settlements or camps are located higher up on the streams. Drinking water is fortunately not much of a problem in the mountains, as one can usually camp beside some small spring or tributary to the main stream, and thus avoid using the river water. In the higher regions, and above timberline, the water is clear, soft, and absolutely pure. A good water supply is one of the delights of an outing, and all intelligent campers take care to preserve the purity of the stream and the neatness of the camp site.

Alcoholic beverages stimulate heart action and should never be taken during a climb. After a trip, a warm drink is usually preferable to an alcoholic drink.

NOTES ON FOOD.

For a one-day trip a light lunch is better than a heavy one. Take all you care to eat for lunch, but don't carry an unnecessary lot of food up the peak and perhaps back again.

Prolonged physical exertion can only be sustained by a well-nourished body. One should eat before getting very tired, and it is well to follow one's inclination, eating part of the lunch on the way up, if one gets hungry. Digestion does not go well with exertion and it is advisable to eat lunch at the top of the peak or at intervals on the way up. Avoid eating a heavy meal immediately before starting on the steep part of the climb.

Individual preference as to food varies widely. Two or three sandwiches, some cookies, a few nuts, raisins, and a cake of chocolate may be suggested as making a compact lunch and one that can easily be obtained.

Chocolate that does not soften when warm is preferable. Milk chocolate is not good in this respect.

A limited amount of candy is a good addition to the menu.

Packages of small seedless raisins can be obtained that are not sticky. In selecting nuts, salted ones should be avoided, as they produce thirst.

A mixture of nuts, raisins, and "jelly beans" has been found to be excellent for eating between meals. Oranges and apples are good, but if there is plenty of drinking water on the trip, they are unnecessarily heavy, considering the small amount of nourishment that they contain.

The food selected for a trip will depend upon individual preference, the length of the trip, the number of people, and also on the distance to the camp and method of transportation.

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Hot meals, or at least hot drinks, are desirable for breakfast and supper. The supply of firewood is always abundant below timberline. Coffee, tea, and chocolate are good breakfast drinks. Tea may be tied in small bags of convenient size and dipped into the individual cup. As hot water is usually available at camp, this makes a drink that can be prepared quickly and in any suitable quantity. "Instantaneous" chocolate is well adapted to camp use; one cupful or many may be quickly made. People frequently have difficulty in sleeping in camp, perhaps because of the high altitude, a hard bed, an insufficient supply of warm bedding, or the unfamiliar surroundings. It is therefore often better to have chocolate for supper rather than tea or coffee.

Canned soups are very useful. After a long, hard trip, when one is both cold and tired, a liberal supply of hot soup is better than a heavy meal.

Dried fruits are good for camp use, as they are lighter and less expensive than canned fruits, but of course they require more time for preparation.

VARIOUS SUGGESTIONS.

SELECTION OF ROUTE.

One can usually choose between a valley route and a ridge route. The valley route follows water, and frequently passes interesting waterfalls or lakes, and makes the greater part of the trip at a comparatively low altitude. The trails often follow valley routes and pass near to cabins and shelters. On the other hand, the ridge routes frequently make better going, as they are apt to have less dense undergrowth, less fallen timber, more of the distance is above timber line and they afford better views of the surrounding country. As ridges are dry, a canteen should usually be carried. Ridge routes are apt to have more ups and downs, but the valley route leaves the steepest climb until the last. Both routes have their advantages and local conditions will usually govern the selection of the best route. A circle trip, going and returning over different routes, adds to the interest of excursion.

LOOSE ROCK.

The proverb that "A rolling stone gathers no moss" is sometimes a useful one to remember in mountain climbing. When on a steep slope with much slide rock, the larger pieces of rock, and particularly those with lichens on them, will usually be found the most stable. On the descent, however, more rapid progress can often

be made by selecting slides consisting of small rock or gravel, as this material will easily give way under foot and make the descent easy and rapid.

When in doubt of the stability of a rock, it is best to step well on the upper, or hill side, of the rock, as it is then less apt to overturn, and even if it does move, a fall is not so likely to result.

On steep slopes, care should be taken to avoid the starting of loose rock. The party should spread out so that no one is in danger from falling rocks, or if this can not be done, they should go in single file, one close behind the other, so that a rock, if started, may be quickly stopped.

FALLEN TIMBER.

One will frequently find that there is less fallen timber in live forest than in areas that have been swept by forest fire, even though the latter may appear to be more open and seem to present an easier route when seen from a distance.

LOST BEARINGS.

If one should become thoroughly lost, the best plan is to go down hill to a water course and then follow it down until some habitation is reached. This will prevent wandering in circles and one can go farther down hill than in any other direction. Dwellings are on streams, not ridges, and there are ranches near the headwaters of most streams.

RULES FOR A PARTY.

Do not take trips into the mountains alone. A minor injury, such as a sprained ankle or a twisted knee, would be a serious accident to anyone alone in the unfrequented mountains.

The size of the party will, of course, depend upon circumstances. A small party travels faster than a large one, for with a large party delays are more frequent and the speed of the party is limited to that of its slowest member. However, with a large party one or two members may be willing to make all the necessary plans and arrangements, thus saving the others time and trouble. The expense per person is frequently less with a large party than with a small one. The sociability of a congenial party is delightful, especially around the camp fire in the evening.

A member of a party who is unable to proceed on a trip, either because of accident or fatigue, should never be left alone, but should

be put in the care of some competent member of the party. If it is necessary to send for help, two or more persons should go.

When a party separates, each group should have its definite leader. These leaders should definitely agree upon a course of action and proceed to carry out the agreement. Contingencies which may arise should be considered in advance, and, when separating, each section of the party should have a clear and definite idea of what to expect from the other members of the party. If they are to meet at any later time, the point of meeting should be a definite place and clearly understood. It is well to agree upon the maximum length of time that one party will wait for the other, and also the subsequent action to be taken in case they do not meet.

When possible, a party should keep together. A leader should be appointed and should assume charge of the party. Others may suggest, but his decision should be final. If any member leaves the party he should get the consent of the leader, and relieve the party of any further responsibility on his account.

If the route to be taken is uncertain, let the leader decide on the course to be taken. Remember that if the party separates, to follow their individual inclinations, the entire party can not resume the trip until the last member has arrived. It is better for the entire party to take the same route, even though it may not be the best one.

For a long or hard trip a small party of equally capable climbers should be selected. A party of four is a good size, as no one need be left alone in case it is necessary for the party to separate.

It is well for the beginner to take the first few trips with some one of more experience. He may thus learn much in a short time that would otherwise have to be acquired by unfortunate mistakes.

There are no trails on most of the mountains, and the selection of the best route is aided by experience. Experience creates ability.

DISTANCE, ELEVATION AND TIME.

Every climber finds it desirable to be able to estimate, in advance, the time required to take a certain trip, and anyone who has reached camp long after dark knows that it is easy to underestimate the time that a trip will consume. To fit the wide variety of conditions and individual needs, each climber should work out his own schedule, but the following is suggested as a trial formula:

Scale the distance to be walked in the round trip, in miles, as shown by the map, and add approximately one-third to give the distance actually to be walked. Determine the number of feet of elevation to be climbed. Add to the distance, as determined above, 2 miles for each 1,000 feet of climb, and the total will be the apparent length of the trip, or its equivalent in miles, compared to a trip on level ground.

Divide this total number of miles by two, and the result will be approximately the number of hours required for the trip.

For example, the length of a trip as scaled from the map is 10 miles; the actual distance to be walked will be about 13 miles; the map shows 4,000 feet of climb, which is equivalent to an additional distance of 8 miles. The trip will be about as fatiguing as a 21-mile walk, and will take about 10½ hours. The time given by this formula is usually sufficient to include all stops, such as lunch, views, rests, etc., but some may find that the time of such stops must be added. Each climber may adapt the formula to his own gait by using a divisor either greater or less than two.

The time required for a trip will of course be affected by the number of persons in the party, the character of the ground, the presence or absence of trails, weather conditions, such as snow, rain, or wind, and also by the length of the trip, since the rate of travel decreases with fatigue.

The length of the route as shown by the map is the minimum possible distance along that route and the distance actually traveled is always somewhat greater, due to minor irregularities of the trail or route; hence to get the actual distance walked, an addition must be made to the scaled distance. The addition of one-third, assumed above, is conservative for most mountainous country.

Do not hurry. Take a gait that can be maintained without stopping. "Who goes slowly goes well; who goes well goes far." Most climbers are satisfied with an average rate of ascent of 1,000 feet of elevation per hour.

Start early. "An hour in the morning is worth two in the afternoon." Plan to end the trip before dusk.

A moderate day's trip may be considered as one that takes seven or eight hours, and includes a climb of about 3,000 feet, with perhaps 8 or 9 miles of distance traveled. Such a trip is equivalent to about a 15-mile walk over level country. Most persons, even if not in training, can take a trip of this sort without difficulty. If the climb of a peak is broken by camping at timber line, then one can reach the top of almost any peak without making any day's trip longer than this.

If the length of a trip is increased to 12 hours, and includes 5,000 feet to climb and a tramp of 12 or 15 miles, it may be considered a hard day's trip, and equivalent to a trip of about 25 miles across level country.

If the length of the trip is increased to 16 or 18 hours, and includes 7,000 or 8,000 feet of climb, in addition to a journey of 18 or 20 miles, it will prove in most cases to be an exhausting trip, approaching the limit of physical exertion. The return from such a trip usually in-

Photograph by National Park Service.

FERN LAKE.

Photograph by National Park Service.

ODESSA LAKE.

volves walking long after one is tired out. It is equivalent to about a 35-mile trip across ordinary country.

A trip of moderate length is more enjoyable than one that brings fatigue long before the end of the trip. When in training one can climb three, four, or even five thousand feet a day, day after day—and enjoy it.

USE OF THE WORD "PARK."

The word "park" as used in this region has several meanings and is the source of more or less confusion to the visitor. In mountainous regions of the Western States it is cutomary to refer thus to a comparatively level and open tract of land. North Park, Middle Park, Moraine Park and others have become official titles in Colorado. These parks are usually grass-covered areas either treeless or only sparsely timbered.

The name Estes Park originally meant only the flat lowlands in the valley of the Thompson River and tributary streams, but has popularly, not officially, been applied to a wide area. The application of the same name to the town does not simplify matters, though the latter is usually referred to as Estes Park village.

The boundaries of the national park exclude, as far as practicable, all land that was under private ownership at the time of the passage of the bill creating the park. For this reason, most of Estes Park village, Grand Lake and other areas of private ownership are not included within the boundaries of the national park. The Rocky Mountain National Park includes most of the area formerly referred to by the more inclusive term Estes Park and for this reason the railroads have tried to secure the maximum amount of publicity by the use of some designation including both names, such as "Rocky Mountain National-Estes Park." Eventually the name Estes Park will probably be used chiefly when referring to the village.

MOUNTAIN REGISTER ON LONGS PEAK AND OTHER MOUNTAINS.

The Colorado Mountain Club placed one of its standard mountain register books, contained in a weatherproof bronze cylinder, upon the summit of Longs Peak, on July 17, 1915. The book was found to be nearly filled on July 23, 1916, and was then replaced by a new book, which in turn was replaced on October 1, 1916. Although exposed to summer and winter weather, the cylinder and register books remained in good condition. The two books contained a total of 883 names. The following tabulation shows the number of entries in the two books, by months:

Month.	1915	1916
June		22
July	[1] 32	166
August	206	347
September	22	84
October		[2] 4
Total	260	623

[1] July 17 to 31. [2] Oct. 1 only.

Late snows in 1915 made the peak inaccessible during June and part of July of that year, and the total number of persons who climbed the peak during 1915 is estimated at 280. This number was more than doubled the following year, and it is believed that more persons climbed the peak during 1916 than in any previous year.

August is the favorite month, with July in second place, a decreasing number of visitors in September and only occasional trips during June and October. The peak is rarely climbed during other months of the year, as it is usually considered difficult and dangerous, if not inaccessible, during the winter.

Nearly one-fourth of the climbers were women. More than half of the people reaching the top of the peak are visitors residing outside of Colorado.

Thirty-five States and Territories and three foreign countries were represented in the list of persons reaching the summit of the peak during the years 1915 and 1916.

The Colorado Mountain Club has placed similar registers on Hagues Peak, Ypsilon Mountain, Hallett Peak, Mount Alice, Mahana Peak, Mount Copeland, Navajo Peak, North and South Arapaho Peaks, Mount Audubon, Paiute Peak, and others.

WEATHER AND CLIMATOLOGY.

SEASON.

July, August, and September are the best months for trips to the high peaks. In June, the winter's snow has usually not left the peaks, and late snows of considerable depth may fall. In October, one-day climbs can often be taken, but there is liability of cold weather and a heavy snowfall. Throughout the winter the lover of outdoor life usually delights in snowshoe and ski trips at lower elevations, and the peaks are practically unvisited, though there are times during an open winter when ascents can be made. Winter storms are serious and may easily become dangerous, and one should not plan winter climbs to high peaks without a full knowledge of the conditions. Even during the three summer months there are frequently times when the high peaks are inaccessible.

LIGHTNING.

The mountain storms are frequently accompanied by lightning. If the storm is heavy and the flashes are close, the lightning should be treated with the respect and deference that are usually accorded it. A projecting rock affords the most secure shelter possible. Next to that would be a close thicket of low trees. Avoid the shelter of a tall, conspicuous tree, as it might act as a lightning rod. For the same reason, one should avoid remaining on the top of a peak or on an open, bare area above timberline. The brass cylinders of the mountain registers have been struck by lightning and the chain melted, without injuring the contents. Leave them alone if there is lightning in the air. One is more secure lying on the ground than standing up.

STATIC ELECTRICITY.

One occasionally encounters a so-called static storm. In this phenomenon there are no lightning flashes, but the presence of electricity is manifested by snapping sounds in the air, tiny blue flashes between the rocks, crackling in one's hair, which involuntarily stands on end, and if one's finger is pointed upward small flashes may emanate from it. This static electricity is not dangerous unless an approaching storm indicates that genuine lightning is to follow. The usual procedure is then to "stand not upon the order of your going, but go at once."

AFTERNOON SHOWERS.

The weather in the mountains is controlled by a few natural physical laws which are easily understood and when once grasped will add so much interest to trips in the mountains that a little study of climatic laws is well repaid. Afternoon showers are of such frequent occurrence in the mountains, and one has such a good opportunity to observe the entire life history of a storm, that the following outline may be of interest.

During the day the sun warms the ground which in turn warms the air adjacent to it. Warm air is lighter than cold air, so a rising current is formed. For this reason the wind usually blows up the valley during the day, but reverses its direction at night when the radiation of heat from the ground has stopped and the cold air, no longer driven upward, flows down into the valleys.

The warm air rising during the day reaches higher altitudes where the atmospheric pressure is less. The air expands and expansion is a cooling process. As it cools, its capacity for holding moisture is diminished. First a light cloud appears, then heavier

clouds, and soon the downpour begins. It is usually short-lived, however. As the sun is hidden and the ground cooled, the direction of the wind is reversed, the moisture is then carried downward, is absorbed by the warmer air, the sky clears and the storm is over, though a mist may fill the valley.

The precipitation in the mountains is more than it is on the plains, because these rain-producing conditions occur so frequently. Similar phenomena explain the plume of cloud that sometimes clings to a mountain peak, though the wind is blowing and other clouds are sailing by overhead.

If the early morning weather is not favorable to your trip, do not start, as it is apt to get worse rather than better.

SUMMER SNOWSTORMS.

During the summer the rainstorm of the valley is often a snowstorm on top of the peaks. The snow is usually not in flakes but the particles are round and sleetlike and sting when driven by a high wind. These summer snows are usually brief and do not accumulate on the ground to any considerable depth; often hardly enough falls to make the ground white. The snow also disappears promptly.

DENSITY OF THE ATMOSPHERE.

The density of the atmosphere decreases with elevation. It decreases in density about one-half for every 3 miles increase in elevation, so that at 14,000 feet elevation the atmosphere is not much more than half as dense as at sea level. The warmth of the atmosphere decreases with elevation.

TIMBERLINE.

Timberline in Colorado varies from about 10,500 feet to 12,000 feet, and is usually found at an elevation of 11,000 to 11,500 feet. "Tree line" would be a more accurate term, since useful timber ceases to grow a few hundred feet below the last trees, which are usually gnarled and stunted. Timberline is governed by climatic conditions and not by the rarity of the atmosphere. It may differ by several hundred feet in elevation in different locations. Thus, on the north and south slopes of the same mountain, timberline may vary considerably. Similarly, it varies in different parts of the country and in general decreases in elevation, as latitude increases, toward the pole.

ZONES OF ALTITUDE.

In a climb to higher altitudes one passes through successive zones of plant and animal life. These zones are determined by the climatic conditions resulting from altitude. The plant life in the zones corresponds quite closely with the plant life of more northern regions. The latitude of the national park is between 40° and 41° north at timberline. The vegetation at timberline corresponds with the plant life that will be found at sea level at a latitude of about 65°. In a trip to the summit of a 14,000-foot peak one passes through the same climatic zones that would be encountered in a trip to the polar regions at about 75° of latitude.

TEMPERATURE AND PRECIPITATION AT LONGS PEAK INN.

(Elevation about 9,000 feet.)

Weather observations have been regularly taken at Longs Peak Inn since the year 1892.

TEMPERATURE.

Maximum and minimum self-registering thermometers are used, and record the warmest and coldest temperatures of the day. The average of these two readings is called the mean temperature for the day, while the difference between them is the daily range. The following figures, in degrees Fahrenheit, represent a summary of these records for a period of 20 years.

Month.	Average mean temperature.	Average of the daily maximum temperatures.	Average of the daily minimum temperatures.	Maximum recorded temperature.	Minimum recorded temperature.
January	23.9	35.1	12.7	56	−21
February	22.0	33.2	10.8	60	−31
March	27.1	38.4	15.8	70	−23
April	33.5	45.0	22.0	69	− 9
May	41.6	54.1	29.1	79	3
June	50.6	65.0	36.1	85	19
July	54.5	69.4	39.6	82	26
August	54.9	69.7	40.1	83	22
September	48.9	63.8	34.0	82	7
October	39.2	52.5	26.0	76	−10
November	31.3	43.4	19.0	72	−17
December	24.6	36.0	13.0	62	−27
Year	37.7	50.5	24.8	85	−31

The above data shows that July and August are the warmest months. The maximum recorded temperature is 85°, though the average temperature in the middle of the day in midsummer is less than 70°. There is no month of the year in which freezing weather has not been known.

PRECIPITATION.

The average monthly precipitation in inches (the snowfall being melted to obtain the equivalent in rainfall) is as follows:

	Inches of precipitation.
January	0.75
February	1.06
March	1.98
April	2.61
May	2.80
June	1.49
July	2.84
August	2.14
September	1.36
October	1.56
November	.88
December	.62
Total for year	20.14

The spring and summer months have more precipitation than the winter months, July and August being the wettest of the summer months. June and September have only about half the rainfall of July and August. The annual precipitation recorded during the 20-year period has varied from a minimum of 13.5 inches to a maximum of 28.71 inches per year.

The above figures are taken from Bulletin 182 of the Colorado Agricultural College, entitled Colorado Climatology, to which the reader is referred for additional information.

EVERGREENS OF NORTHERN COLORADO.

By Ellsworth Bethel.

The forests of Colorado consist chiefly of cone-bearing trees commonly called evergreens. The following brief keys will enable anyone to distinguish the various kinds found in northern Colorado.

Pines (leaves in bundles of two, three, or five needles):

Rock pine—Leaves in two's or three's; scales of cones with prickles; common in the foothills up to 8,000 feet elevation.

Lodgepole pine—Leaves in two's; scales of cones with prickles; cones remaining on the trees for many years; 8,000 to 10,000 feet elevation.

Limber or range pine—Leaves in five's; scales of cones thick and without prickles; most common at high elevations.

Bristle-cone pine—Leaves in five's; scales with prickles; at high elevations, rare, not found north of James Peak.

Spruces (leaves short, single; sharp-pointed, four-sided, borne on short stalks):

Engelmann spruce—Branchlets usually minutely pubescent; cones short, reddish brown; dense forests; from 8,000 feet elevation to timbler line.

Colorado blue spruce (the State tree)—Branchlets smooth and leaves often silvery; cones long, light brown; along streams up to 8,000 feet elevation.

Alpine fir—Leaves flat, blunt-pointed; cones upright and falling to pieces at maturity; forests above 8,000 feet elevation.

Douglas fir (not a true fir)—Leaves soft, short, flat, and blunt; cones with exserted three-pointed bracts; common up to 8,000 feet elevation.

Junipers (leaves either scales, or awl-shaped needles; fruit berry-like):

Rocky Mountain cedar or juniper—A small tree scattered throughout the mountains.

Trailing juniper—A prostrate shrub; from the foothills to 12,000 feet elevation.

NOTES.—(*a*) At timberline are found dwarfed specimens of Engelmann spruce and alpine fir, limber, lodgepole, and bristle-cone pine are often found with these.

(*b*) The altitudinal ranges given above are only approximate. Occasional trees of each species will be found above and below the elevations here given.

SIX CHARACTERISTIC MOUNTAIN BIRDS.

By ROBERT B. ROCKWELL.

AMERICAN DIPPER OR WATER OUZEL.

Habitat: Along courses of mountain torrents, 5,000 to 11,500 feet elevation.

Size: Slightly smaller than a robin.

Color: Uniform dull, slaty gray.

Note: A beautiful liquid, thrushlike note and during nesting season a noisy chattering note.

Peculiarities: Equally at home on shore or in the swiftest water. Builds a beautiful covered nest of moss where the spray keeps it continually moist. Not migratory.

LONG CRESTED JAY (ERRONEOUSLY CALLED "BLUE JAY").

Habitat: Throughout mountainous area from plains to 10,000 feet elevation. Most abundant between 7,000 and 9,000 feet elevation. Sometimes winters on plains at base of foothills.

Size: Slightly larger than a robin.

Color: Wings and tail brilliant, deep blue, head black, breast dull blue, chin streaked with white.

Note: A wide diversity of call notes impossible to describe. The harsh loud single note is most common, but many others identify the bird.

Peculiarities: The tall conspicuous topknot and brilliant coloring render it easy to identify.

ROCKY MOUNTAIN JAY OR CAMP ROBBER.

Habitat: Heavy evergreen forests, 8,000 feet elevation to timberline during summer. Sometimes somewhat lower during severe winters.

Size: Slightly larger than a robin.

Color: Light slaty gray with white-tipped wing and tail feathers, crown pure white, breast with slight brownish tinge.

Note: A rather weird, harsh single note, or a low-pitched garrulous chatter, quite conversational in tone.

Peculiarities: Tame, unsuspicious, wise to a degree and the craftiest thief of camp provender in the bird world.

AMERICAN PIPIT OR TITLARK.

Habitat: In summer, mountains from 10,000 to 14,000 feet elevation. In winter, south to Mexico and Guatemala.

Size: About that of a tame canary.

Color: Light grayish olive above, pale buffy white below, white edging on outer tail feathers. Viewed from a distance, appears uniform light brown.

Note: Males are wonderful songsters during the nesting season. Note during the rest of the year is a weak whistle, but quite characteristic.

Peculiarities: The only truly migratory bird, which nests among boreal weather conditions above timberline.

BROWN-CAPPED LEUCOSTICTE OR ROSY FINCH.

Habitat: In summer, above timberline, 11,000 to 14,000 feet elevation. In winter, just below timberline, unless driven lower by storms.

Size: Slightly larger than an English sparrow.

Color: Body cinnamon brown, wings and tail dusky black, edged with pink; wings, tail coverts, flanks, and abodmen washed with pink; head dusky black.

Pecularities: The highest ranging small bird in America. Not known to exist outside of Colorado. Nest and eggs not found until 1915.

WHITE-TAILED PTARMIGAN (INCORRECTLY CALLED "SNOW QUAIL").

Habitat: In summer, from timberline to tops of highest mountains. In winter, at about timberline, occasionally a little lower.

Size: Slightly larger than a bantam hen.

Color: Tawny buff, mottled and barred irregularly with black and white in summer, slowly changing to pure white in winter.

Peculiarities: The most truly boreal of all Colorado birds. The only American bird which changes to white plumage. The only large bird which lives entirely within the Arctic-alpine zone.

Note: Harsh, loud, rattling cackle.

KEY TO COLORADO SQUIRRELS, CHIPMUNKS, AND GOPHERS.

By Robert B. Rockwell.

- Animals with stripes on back.
  - With stripes only.
    - Four light stripes on back. Smaller.....Little chipmunk.
    - Two light stripes on back. Larger.....Big chipmunk.
  - With stripes and spots. Thirteen stripes on back, six light, seven dark, with white spots. Generally tawny color. — Common striped gopher.
- Animals without stripes on back.
  - With long bushy tails. "Squirrel-like." Typically in or among trees or rocks.
    - Ears with long tufts.....Tuft-eared squirrel.
    - Ears not tufted.
      - Brown or rufous, whitish below, not mottled. Less than 18 inches long, including tail. Tree squirrel. Friendly and noisy. — Fremont squirrel.
      - Sandy colored, mottled. Over 18 inches long, including tail. Large ground-living squirrel. Shy. — Rock squirrel.
  - With short tails and not bushy. "Gophers" in or near earth burrows.
    - "Mole-like." Long front claws. Naked tail. Small eyes and ears. Hair silky. — Pocket gopher.
    - Not "mole-like." Large eyes. Coarse fur. Tail hairy. Ears and claws normal. — Picket-pin gopher.

YOUR FRIEND, THE MOUNTAIN.

The dawn is lighting up the eastern sky. The black shadows of the pine forest are taking on detail of trees. The sky is clear. There is a stir at your side. Your companion thrusts his head out of his sleeping bag to see what is going on. Well, the bed isn't any too soft, so let's get up and stretch. Put on your good old boots that have taken so many pleasant and memorable trips with you. Come down to the creek where a splash of water—that was snow a few hours ago—removes any trace of drowsiness and fills you full of energy and ambition. A match, a few dry twigs, then branches, and soon the bacon is sending out its appetizing fragrance and the coffee begins to boil. Did ever a breakfast taste so good? The birds, too, know that another new day has come.

Look! The sun has touched the top of the peak and painted it a rosy hue. Watch it creep down the side and light up the lesser peaks all around us. No wonder they used to worship the sun. What a glorious thing it is!

Look! The grand old peak stands there so majestically. He has watched the sun rise day after day, year after year, for centuries,

who will say how many? No wonder he has such a solemn dignity! Follow the slope with your eye, on and on, up and up, to the summit towering several thousand feet above us. The mountain is so great—man is so small. Do you suppose we will ever stand up there on the highest point—it seems so inaccessible, remote and so far above us.

Well, let's start. We will follow this laughing, leaping stream through the forest of fine big spruce, on a soft carpet of moss. How beautiful the flowers are! Hear the squirrel and the other familiar sounds of our wild neighbors. The trees that we are approaching are stunted, and their branches grow only in one direction. Life is a hard battle for them up here at timberline, but they cling to it tenaciously. Here is the last tree. How twisted and gnarled! How many years of slow, slow growth have been required for it to attain its few feet of height?

Now we are entering that other world, the country above timberline. Even the flowers have short stems, as though they are fearful of getting too far from the protecting earth. Look about you; the view is unobstructed. See the valley where we camped last night. Ridge after ridge, peak after peak lies in perspective. Every little while new and more distant peaks show over the nearer ridges. Here and there is a little patch of snow. How refreshing is the clear, cold water! Is this the top ahead of us? No, a little farther beyond there is a higher point.

It is like one's life. The distance to be covered seems so great; progress is so slow; any single advance seems so trifling. Still, with the goal always in view, and every step leading in the right direction, perseverance brings success.

Surely that must be the top. Well, come on, one pull more. Here we are. Don't exclaim, don't say anything, just look around and below. Miles and miles in every direction. Forest, hills, ridges and peaks; a veritable empire. There in the distance are the plains, with their innumerable little lakes, and away off at the horizon the earth blends with the sky.

How little change the centuries bring to these old mountains! They looked just as they do now when the pioneers came into the country—yes, when Columbus made his first voyage; and as we think back, back over human history, we know that the changes within all of human history must have been slight indeed. Even the trail left by the glaciers still shows clearly, uneffaced by the countless centuries. Surely if one can ever grasp the infinity of time and space, it is here, standing on the peak and looking off to the vanishing horizon.

Take a few more deep breaths; such air! What a feeling of difficulties overcome; success at last! Stretch out your full length on

Photograph by W. T. Lee.

THE LOCH AND ANDREWS GLACIER.

Photograph by W. T. Lee.

SKY POND AT THE VERY HEAD.

LOCH VALE.

this flat slab of granite. Absorb its strength as did Antaeus, redoubling his power with every touch of Mother Earth.

Here, unwrap that little package. How good the lunch tastes! Now, what time is it? Well, perhaps we should start back. One last look.

Descending is faster than climbing, but slow enough at that. Fatigue makes itself felt. Well, just keep going. Here come the trees again, and the world that people live in. Here is the camp once more and our trip is over.

Tired? How good it feels to stretch out on the soft ground! There will be no sleeplessness tonight but, oh, such a well-earned rest. How the pleasures of this day will remain, long after the weariness is forgotten! And the hardships? Well, they were part of the fun and who will not bear them in happy remembrance?

—*R. W. T.*

CATHEDRAL OF THE HILLS.

Do you mourn the wrecked cathedrals gone from Antwerp and from Rheims?
Look above you! Nature's temple far surpasses human dreams.
Hush your soul and enter humbly, climb the velvet-covered stair,
Stand between the massive pillars carved in solid granite there;
Softly tread the mossy carpet spread along the silent nave;
Lo! a glacier for an altar, red with fire the sunset gave.
Here no saints stand carved in marble, folded hands and upturned eyes,
But the figures Nature sculptured point directly to the skies.
While above—the dome of azure with its hangings snowy white,
Touched with rich embroidered colors from the sunset's golden light,
And the priests who serve this temple, guard its halls and galleries steep?
Giant peaks of the Arick'ree their eternal vigils keep.
Was your soul moved in man's temple? You can never be the same
Since to Nature's vast cathedral you in silent worship came.

—*Emma R. Barnard.*

PART 2.

THE PEAKS AND HOW TO REACH THEM—METHODS OF APPROACH, TRAILS AND REPORTS OF CLIMBS, GIVING STARTING POINT, ROUTE FOLLOWED, TIME REQUIRED, AND OTHER DATA.

ARRANGEMENTS OF REPORTS.

The mountain area under consideration in this book may be approached from several directions. The data on how to reach the peaks and the reports of trips to the principal peaks are grouped according to the starting point that one may select. Reference to a peak may be found in two or more places, but all trips from the same starting point are grouped together, and it is believed that this is the most useful and convenient arrangement.

The data regarding peaks on the eastern side of the range are placed first and grouped under locality headings, such as Estes Park (including Longs Peak, the Mummy Range, etc.), Wild Basin, Middle St. Vrain Creek, Ward, and North Boulder Creek.

The data regarding peaks on the western side are also grouped under locality headings such as the Medicine Bow Range, Grand Lake, and Monarch Lake.

The data and reports on peaks are grouped according to the following outline:

Peaks accessible from the eastern or Atlantic slope:
- Peaks accessible from Estes Park.
  - Longs Peak.
  - Other peaks accessible from Longs Peak post office.
  - Peaks of the Mummy Range.
  - Other peaks of the Continental Divide and east side accessible from Estes Park.
- Peaks accessible from Wild Basin.
- Peaks accessible from Middle St. Vrain Creek.
- Peaks accessible from Ward.
- Peaks accessible from North Boulder Creek.

Peaks accessible from the western or Pacific slope:
- Peaks of the Medicine Bow Range, etc., accessible from the North Fork of the Grand River.
- Peaks accessible from Grand Lake.
- Peaks accessible from Monarch Lake.

LONGS PEAK.

[Altitude, 14,255 feet.]

Longs Peak is the king of the Rocky Mountain National Park. It is more than a hundred feet higher than Pikes Peak. Mount Meeker, Mount Lady Washington, and Longs Peak form an encircling ring of granite cliffs that nearly surround Chasm Lake and produce one of the wildest and most impressive spots in the Colorado mountains. It stands well out from the Continental Divide, with which it is connected by a short spur of bristling peaks. The alcove of deep canyons north of it is called the Wild Gardens; the similar alcove south of it is called the Wild Basin.

Among Colorado peaks, Longs Peak ranks thirteenth in order of height. It is the highest peak in the northern part of the State, Grays and Torreys Peaks being its nearest rivals. It dominates the Rocky Mountain National Park and can be seen from a great distance in every direction—for example, from Pikes Peak, 103 miles distant. Longs Peak is on the eastern slope, 2 miles east of the Continental Divide. By reason of its accessibility it is probably climbed more frequently than any other 14,000-foot peak in the State, with the possible exception of Pikes Peak. It is an unusually interesting climb by reason of the wide variety of views, its rugged character, and the different points of interest along the trail. The climb is not a dangerous one, but there is no very easy route to the top, as is the case with so many peaks.

The first ascent was made on August 23, 1868, by a party consisting of Wm. N. Byers, Maj. W. J. Powell, and five other men. They climbed the peak from the south side.

Approach—There is an automobile road from Estes Park village (elevation 7,547 feet) to the settlement known as Longs Peak (elevation 9,000 feet). The distance is 9 miles. An auto stage is run in connection with the hotels. The hotels located nearest to the peak are Long Peak Inn, the Columbines Hotel, and Hewes-Kirkwood Inn. These hotels are on the east side of the peak at an elevation of from 8,900 to 9,100 feet. They are within 5 miles of the top of the peak, in an air-line or about 7 miles by trail. A road recently built runs up from the Hewes-Kirkwood Inn for half a mile or so toward the peak, and if one takes an auto to the upper end of this road (elevation about 9,300 feet), which is the nearest approach to the peak by road, it will shorten the climb to the peak in time, distance, and elevation.

Sprague's Hotel, in Bartholf Park, is on the north side of the peak at an elevation of about 8,600 feet. The peak can be climbed from this point, but the trail is not as much traveled.

The trail on the east side of the peak is clearly marked. It is very desirable to have a guide on one's first ascent of the peak, as the trail beyond the Keyhole is difficult to follow. Guides can be obtained at Longs Peak Inn, Hewes-Kirkwood Inn and from The Columbines.

The climb may be made in one day or in a day and a half. For those who are not sure of their endurance the easiest way is to take horses at one of the hotels and ride to the edge of the Boulder Field, at an elevation of about 12,300 feet, and about 5 or 5½ miles from the hotels. Horses may be tied here (though there is no fodder), and the remainder of the trip taken on foot. This reduces the elevation to be climbed to about 2,000 feet. The distance to the top is about 2 miles. Horses may be obtained at Estes Park or at either Longs Peak Inn or Hewes-Kirkwood Inn.

The climb is frequently made from the hotels on foot in one day, but the elevation to be climbed is about 5,200 feet, which is a long, hard day's work, and one is apt to be tired when the most interesting part of the climb is reached. Therefore, the one-day trip on foot is not recommended for one's first trip up the peak, unless the climber knows that his energy is equal to the task.

A very good way to make the climb on foot is to allow a day and a half. The start can be made in the afternoon from one of the hotels above mentioned and the night spent at Timberline Cabin. This is a mountain shelter under the same management as Longs Peak Inn, and is located at an elevation of about 11,050 feet. It contains a kitchen and two sleeping rooms with bunks, in tiers, and in midsummer tents furnish additional accommodations. The shelter is kept open through the summer months and is closed some time in September, depending upon the season. A cook is in attendance to care for the wants of travelers.

As the accommodations are limited, reservations should be made in advance. There is a telephone connection between Timberline Cabin and Longs Peak Inn. Owing to the location of this shelter and the fact that all supplies must be taken up by pack horse, one should not expect anything but the simplest accommodations; however, a roof, a stove, and warm food are as welcome as they are infrequent at timber line.

The trip from one of the hotels to Timberline Cabin may easily be made in two or three hours. Fast climbers may require only an hour and a half. The trail goes up the well timbered mountain side and for a short distance runs along Alpine Brook, a picturesque, as well as refreshing, stream. Firewood is abundant all the way along the trail, as far as timber line.

From Timberline Cabin the trail winds upward, crossing the ridge, known as the Wall of China, at Granite Pass, between Battle Moun-

tain and Mount Lady Washington, and reaches the edge of the Boulder Field. Drinking water is found at the lower edge of the Boulder Field. In midsummer this is the last water that will be found on the peak, but either early or late in the season, if snow is present and the weather is warm enough for it to melt, small streams will be found trickling across the trail at the Ledge or on the Narrows. From the edge of the Boulder Field to the Keyhole the route lies across a tumbled mass of bowlders, large and small.

The Keyhole is an irregular gap in the ridge leading from Longs Peak to Storm Peak, an overhanging mass of rocks on one side of the gap entitles it to the descriptive name. The trail presents no difficulties whatever as far as the Keyhole and makes an enjoyable trip to this point, even if one goes no farther. From the climber's standpoint, however, the most interesting part of the trip begins here. The view from the Keyhole, looking down into Glacier Gorge, is very fine. If the day is at all breezy, there is apt to be a strong wind at the Keyhole.

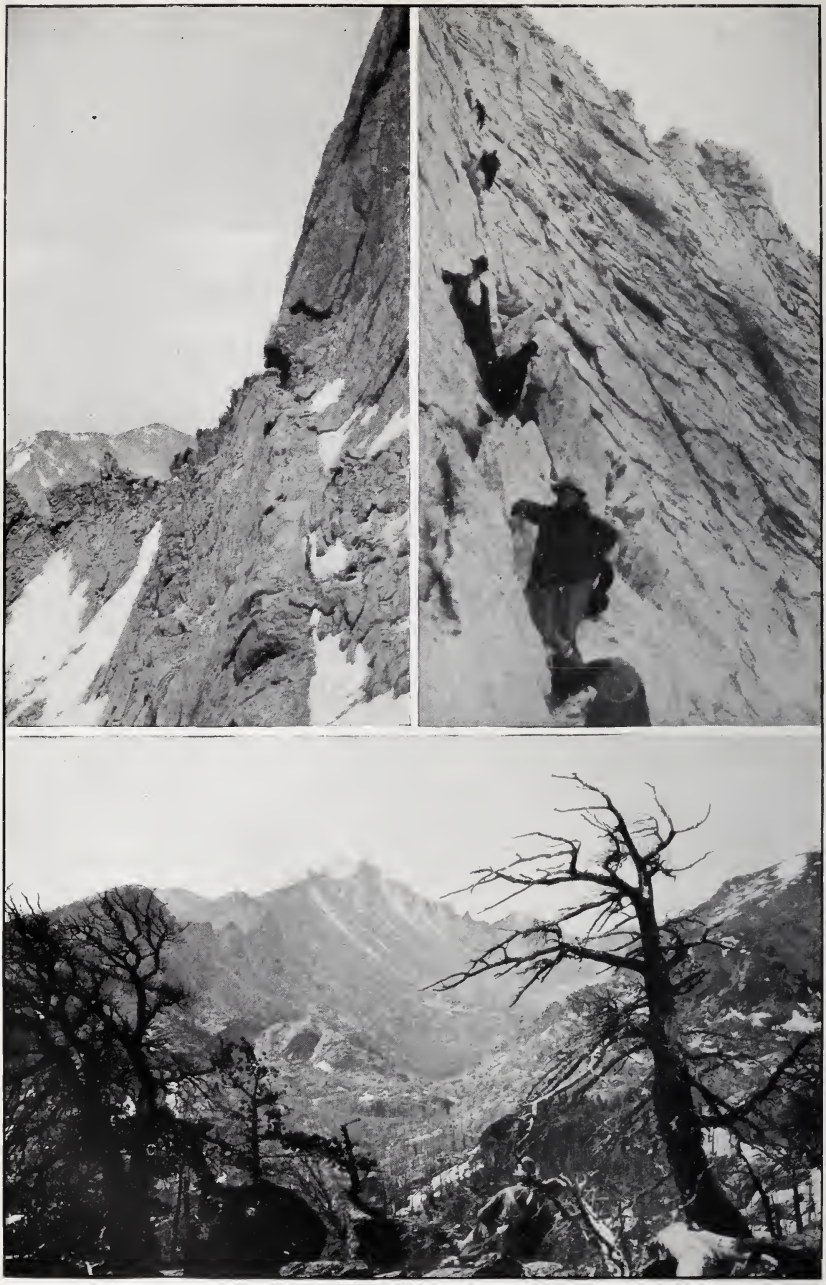
From the Keyhole the trail leads in a fairly horizontal line across the Ledge or Shelf. Above, the rock face of the peak rises toward the summit with increasing steepness, and below it slopes quite steeply into Glacier Gorge. The trail from the Keyhole to the foot of the Trough is partly over solid rock, which gives but little sign of the route to be followed; particularly on the return trip one must be careful not to get either above or below the trail, for to do so might lead one into difficulty. For this reason a guide can be of great help in following the route, and even on one's second or third trip, careful observations should be made on the way up, in order to locate the trail upon the return trip.

The Trough is a steep ravine filled with loose rock. Climbers should be careful not to dislodge any rocks which might be disastrous to those on the trail below. Early or late in the season the Trough will probably be partly filled with snow and ice and one should watch his footing to avoid a fall. At the top of the Trough there is a steep scramble to get up a rocky wall some 10 or 15 feet high. One is usually so much occupied in this portion of the climb that the view down into Wild Basin comes with an abruptness that is startling. One is now on a sharp ridge, with Glacier Gorge, temporarily forgotten, in the rear, while ahead the cliffs fall abruptly and then merge into the vast valley of Wild Basin.

The next 200 or 300 feet of the trail is called the Narrows. It is a shelf 3 or 4 feet wide at the narrowest point. Above, the cliff rises steeply toward the top of the peak, and below it falls abruptly for 100 or 200 feet and then slopes steeply into the rocky gorge below. Looking at the Narrows from the head of the Trough often gives one a dizzy feeling, but this sensation does not last long. The foot-

LONGS PEAK TRAIL.

Upper left: On the Shelf Trail.
Upper right: The west side of Longs Peak from the Trough.
Photographs by G. H. Harvey, jr.
Lower: Glacier Gorge from the Top.
Photograph by Clark Blickensderfer.



LONGS PEAK TRAIL.

Upper left: The Narrows.
Photograph by Geo. C. Barnard.

Upper right: The Home Stretch.
Photograph by W. F. Erwin.

LONGS PEAK AND GLACIER GORGE.

Lower Photograph by G. H. Harvey, jr.

ing is firm and there is no danger. This part of the trail is on the south side of the peak and is usually free from snow and ice. If not accompanied by a guide, one should watch the trail carefully at the end of the Narrows so as to be able to find the best path on the return, for the rocks leave little trace of the trail, and on either side one might get into trouble.

The Home Stretch starts at the end of the Narrows. Here the trail leads up the sloping slabs of rock to the top of the peak. One uses both hands and feet in this last scramble, but the rock face is seamed by cracks and the footing is good, so that it is not difficult under ordinary weather conditions.

The top of the peak is practically level, and has an area of 10 or 15 acres. It is covered with rocks of all sizes, similar to those on the Boulder Field. The cairn is at the northeast corner of the flat top of the peak, and from it a splendid view is obtained over a vast area. To the south the mountains are crowded one behind another; several ranges are visible. Pikes Peak, 103 miles away, is one of the more distant visible peaks; all the prominent intervening peaks can be distinguished. To the west, the Continental Divide is near, and its peaks are prominent, while further away is Medicine Bow Range. Fifteen miles to the north is the Mummy Range, beyond which the mountains decrease in size and fade away toward the Wyoming horizon. To the east lie the plains, dotted with innumerable reservoirs and blending with the sky in the distant horizon. One can see into Wyoming, 52 miles distant. Other States are not visible, as Nebraska and Kansas are 188 miles distant, and Utah is 181 miles away.

The Colorado Mountain Club has placed a bronze weatherproof cylinder on top of Longs Peak containing a small register book. Here several hundred visitors record their names each year.

Upon starting down, the Home Stretch appears more steep and difficult than it did on the way up, for a slope usually looks steeper when viewed from the top than from the bottom. However, it is not dangerous, and a little care is all that is needed.

The return trip need not be described, for the same route is followed. It is important to carefully watch the trail down the Home Stretch and to the Narrows, and again watch for the right place to leave the Trough, and stay close to the trail across the Ledge. The Keyhole is not visible from either the Trough or the Ledge, and it frequently happens that on the return trip parties mistake a notch higher up on the ridge known as the False Keyhole for the genuine one.

Most parties continue their descent to their hotel in the valley, but if the climb has proved to be exhausting, one can spend the night at Timberline Cabin, and complete the return trip on the following day.

Time.—The time required from Longs Peak Inn, Hewes-Kirkwood Inn, or The Columbines is practically the same, though the latter two are a fraction of a mile closer to the peak. The usual time may be put at 1½ to 2 hours to Timberline Cabin, 1 to 2 hours more to the end of the horse trail at the Boulder Field, 45 minutes to 1¼ hours more to the Keyhole, 1 to 2 hours more to the Narrows at the head of the Trough, and three-fourths to 1½ hours from there to the top. At least half an hour and preferably 1 hour should be allowed for the stay on top in order to rest and enjoy the magnificent view. The return to Timberline Cabin will take from 2 to 4½ hours and from there to any of the three hotels will take from 1 to 2 hours. The total trip from Longs Peak Inn or either of the other hotels, to the top of the peak and return, takes from 8 hours, for a fast trip, to 18 hours, for a slow trip, depending upon the party. Twelve hours may be considered average time. If one starts from Timberline Cabin in the morning, and returns to one of the hotels at night, the trip will be reduced by 2 or 3 hours. Nine or 10 hours may be considered average time for this trip.

The shortest time for climbing the peak, of which record is available, is Willard T. Day's trip, via the north face. He reached the top in 3 hours and 15 minutes after leaving Longs Peak Inn. The total climb of 5,255 feet was accomplished at a rate of 1,617 feet per hour, which is unusually fast climbing. Shep N. Husted has made the round trip, via the usual trail, in a little less than 6 hours from Longs Peak Inn. Shep Husted has climbed Longs Peak more than 200 times.

The following reports of various trips by large parties and small ones, and under various weather conditions, and at different rates of speed, will be of interest for purposes of comparison.

CLIMBING LONGS PEAK BY MOONLIGHT.

[Report furnished by Robert Collier, jr. (Aug. 17 and 18, 1916).]

Number in party, 27; 15 women, 12 men, and a dog.

After supper near Timberline Cabin at 6.30, we slept in the open, as best we could until the moon came up at 10 o'clock. The moon was in the last quarter and consequently not very bright, but it was enough to make climbing practicable. The pace was very slow, just enough to keep the party moving and warm. The usual trail was followed. Reached Boulder Field at 1 a. m. and Keyhole at 2.30 a. m. The Trough was in good condition for climbing. The views obtained on the way were very fine. The lights of Denver, Estes Park, and many small towns in the valley were seen. We arrived at the Narrows at 3.30 a. m. and the summit was reached at 4.30 a. m., just as the sky was beginning to be tinted by the coming sun. Soon a high wind came up, that, coupled with the freezing temperature of the night, chilled us through, in spite of all that we could do to keep warm.

After watching the sunrise and signing the register book the party started down at 6.30 a. m., arriving at Keyhole at 8.30 a. m. Here some ate breakfast, and then all drifted along, reaching camp at timber line at 9.30 a. m., where hot coffee and chocolate helped make out more of a breakfast.

This party of 27 is unusually large for a moonlight trip, and it is worthy of note that no one gave out, though some were not experienced climbers.

Our advice is: In order to keep warm on a moonlight climb on Longs Peak always take five times too much clothing, and then take some more.

A FAST CLIMB UP LONGS PEAK.

[Report furnished by George C. Barnard.]

In the middle of July, 1915, three of us made the ascent of Longs Peak in the actual going time of 8 hours and 10 minutes from Denver. Of course conditions of road and weather were favorable, and we were in the pink of condition, or we could not have made that record. However, we did not start with the idea of making an unusually fast trip, and spent a little time in taking pictures on the way to the summit.

For pure enjoyment I should never advise a fast trip up any mountain, for the greatest pleasure lies in drinking in the marvelous views that greet one in every direction, stopping to enjoy the flowers and to watch the birds, photographing the cloud effects, the waterfalls, and the distant ranges, and in a general way becoming familiar not only with the immediate surroundings, but the geography and topography of the region.

Where one's time is limited the best way to make the trip up Longs Peak is to leave Denver in the early afternoon by automobile, and go direct to Longs Peak Inn. Here the machine must be left, and the 4-mile trail to Timberline Cabin covered either on foot or on horseback. Spend the night there, and after a good breakfast at 5 in the morning start for the summit not later than 6 o'clock. From three to five hours under ordinary conditions is ample time for the average climber to reach the summit.

In good weather it is always worth while to spend at least an hour on top and a busy hour it may be if one tries to study the topography of the surrounding ranges. The return trip to timberline will be made in about half the time required for the ascent, and from timberline another hour on the trail brings one back to the Inn and the automobile.

I have climbed Longs Peak a number of times, under widely varying weather conditions. I shall never forget the first trip. We had gone to Longs Peak Inn, planning to go to timber line on the following day and climb the peak on the third day. All the second day it rained in the valleys and snowed on the peak, so we remained at the Inn.

The following morning (July 3) looked threatening. We parleyed as to whether we should start. The sun tried to come out and shine about 8 o'clock and we decided to attempt the trip and chance the weather. We were not in good condition and the walk to timber line seemed like a good day's work. Again the weather threatened and there were flurries of snow and rain. We hated to turn back, so pushed on across the Boulder Field to the Keyhole.

When we reached the Trough we found it nearly full of snow and our progress was slow indeed. However, I shall never forget the wonderful cloud effects below us in Glacier Gorge and out across the Continental Divide as the scurrying rain clouds were whipped by the wind around Pagoda, Chiefs Head, McHenrys Peak and Taylor Peak. At the top of the Trough we paused in awe to gaze into the cloud-filled depths of Wild Basin. The sun came out, and away

to the south we could discern the Arapaho Peaks and the jagged pinnacles of the Arikaree group.

We passed on across the Narrows and in a few minutes found ourselves at the foot of the Home Stretch. Here was a graver situation. The big broken seams in the granite, that give such excellent toeholds and handholds when one climbs this steep incline (slanting in two directions) in dry weather, were filled with snow and ice and I began to feel that our judgment had been faulty in attempting the ascent on such a day.

However, a little care and perseverance brought us safely to the summit a few minutes before 5 o'clock in the afternoon. It was cold and the clouds were beginning to drift in about us again, so we only tarried long enough to leave our names in a tin can which we found in the cairn on top, and then began the downward journey.

The trip down was in many ways more spectacular than the ascent. While passing along the Narrows our faces were cut by sharp sleet and snow, while clouds filled the depths below, giving a feeling of insecurity hard to describe, and before we had finished the descent of the Trough we were thoroughly soaked. Just as we reached the Keyhole the storm ceased and the clouds lifted in the west, treating us to one of the grandest sunsets I have ever seen. Heavy mist filled Glacier Gorge, partly obscuring the lakes in its depths, while through a rift in the clouds the peaks along the Continental Divide were seen and away in the distance the Medicine Bow Mountains stood out sharply in the sunset glow.

It was getting cold and we lost no time in crossing the Boulder Field and descending to Timberline Cabin, where we arrived wet, tired, and cold, with the thermometer just 32° above zero.

Longs Peak appeals to the average mountaineer because of the absolute lack of any uninteresting climbing. The trail to timberline on either the north or east sides of the peak lies through beautiful timber and the distant views are fine enough to keep one's mind from dwelling on the difficulties of the ascent. Once Boulder Field is reached the view broadens until it comprises distant ranges, wild cirques, and numberless lakes, so that here, too, there is little time to dwell on the difficulties of the ascent.

Shelf Trail, along the west side of the peak, is not difficult in dry weather and gives an opportunity for a more extended study of Glacier Gorge and the peaks that surround it—Pagoda, Chiefs Head, McHenrys Peak, Taylor Peak, and Thatchtop Mountain. Once across the Shelf Trail, the most arduous task of the trip confronts us in climbing the Trough. But here again the scenery is superb. As one climbs higher in the Trough the almost perpendicular cliffs, seamed and broken, that form the west face of the peak stand out to the left in sharp outline against the northern sky, and each hundred feet of ascent rewards the climber with more distant views across the Continental Divide to the Medicine Bow Range, Middle Park, and the Gore Range.

At last the top of the Trough is attained. As suddenly as the view of Glacier Gorge bursts on the eye at Keyhole the indescribable view across Wild Basin to the summits of Mount Copeland, Mount Audubon, Arikaree and Arapaho Peaks greets you at the top of the Trough. No matter how enthusiastic an admirer of mountain scenery you may be, the spirit of "get to the top" is now in your veins and you push along the Narrows for 150 yards to the face of the Home Stretch. Here again is a steep climb that offers, however, no difficulties in dry weather, but where greatest caution must be exercised when the steep granite surface is covered with ice or snow. In July, 1915, we found it necessary to cut steps across the field of ice and snow on the Home Stretch for 150 yards, and when one considers that the granite face slants

on an angle about equal to the average house roof, it is easy to understand that care and deliberation and a level head are necessary.

Perhaps the most impressive sight that I have ever seen from Longs Peak was on a trip in 1914, when clouds at an elevation of approximately 10,500 feet covered the plains from Wyoming to Colorado Springs, and as far east as the eye could reach. An east wind had driven the mist up into the valleys of the foothills, and, indeed, clear into the cirques that line the Continental Divide. Peaks and high ridges stood out like islands in the sea, and below us Twin Sisters Peak bore a striking resemblance to a huge battleship plowing through the surf; its two summits were like gun turrets, and mist, driven by the wind, whirled upward at the southern end of the peak like spray thrown into the air from the bow of a ship. We were amazed at the uniform height of the cloud mass, which for several hours was almost unbroken and quite level, save where the surface was ruffled here and there by rolling waves of mist.

If you never have climbed a mountain of 14,000 feet, start by making the ascent of Longs Peak, where every half hour will change the view and every hour will change the character of your climbing.

LONGS PEAK BY VARIOUS ROUTES.

[Report furnished by Enos A. Mills.]

About June, 1903, I made a trip down the east side of the peak to Chasm Lake. I went from the very summit to the Little Notch in the top and then descended almost vertically about 200 feet. I do not think anyone had ever been down this way before, but I believe that Rev. E. J. Lamb many years earlier went down from the bottom of the Big Notch some distance farther to the south. A more complete account of this trip is to be found in Outing for July, 1904.

One of the most striking climbs that I ever made to the top, I made on an extremely windy day in winter.

The easiest trip that I have made to the top of the peak was made during January. I reached the summit without touching any snow. The loose rocks in the Trough were frozen solid. The day was warm and windless. I made the round trip from the inn in nine hours and did it easily.

An interesting climb was made the first week in May one year immediately following a heavy fall of snow on the summit. This snow had slipped or blown from the rocks from Keyhole to the bottom of the Trough, but all the way up the Trough it was 2 feet deep. However, I waded up through it without starting a slide and on the way down the Trough I simply sat down in the soft snow and slid from the top of the Trough to the bottom in about a minute.

A good climber will find it interesting at the top of the Trough to climb onto the summit on the southwest corner of the peak without going around on the Narrows or the Home Stretch.

In July, 1896, I was climbing Longs Peak with an adventurous young man from Pittsburgh. Just after we passed through the Keyhole I told him of the possibility of getting to the summit by a shorter though more diffcult route than that of the regular trail. This appealed to him After we passed the high point on the trail, about midway between the Keyhole and the Trough, we turned to the left, east, and climbed up a gully. In the upper end of it for about 200 feet we had interesting ledge work, but by helping each other we reached the summit without great difficulty and did not use either ropes or Alpine stocks. But some one had been over this route before. This way is

one which I would commend to all who are looking for an interesting climb and one not too dangerous nor difficult.

Two or three years earlier than this I had traveled from the summit of Mount Meeker through the Notch, scaling the peak from that quarter. This is an interesting climb, but one not to be commended to the average climber because of the danger element, nor to anyone who is short on time.

I twice made the summit of the peak from Boulder Field. Once, from a point about 200 feet east of Keyhole and with much zigzag climbing I at last reached the summit. The other time I climbed up quite close to the northeast corner and not far from the precipice. I did a little zigzagging but conditions were favorable and I made this climb all alone and without rope or Alpine stock.

Both these are excellent rock climbs, but the danger is a little too great for the inexperienced climber. I have not yet climbed down this north side. Once I attempted to do so but after spending 2 hours and getting caught in a high wind I deemed it wise to return to the summit and come down the regular way.

LONGS PEAK FROM THE NORTH SIDE.

[Report furnished by Willard T. Day, July 1, 1916.]

The party of nine left the Young Men's Christian Association in a car at 6.00 a. m., arriving at Longs Peak Inn at 6.35, and leaving for the peak immediately. Our party split up into three groups, three others and myself being in the lead. We reached Boulder Field without incident at 8.50 a. m., and a little later I decided to leave the party and attempt to scale the north side of the peak. The others went on through the Keyhole. My route lay along the east side of the snow patch to the edge of the chasm, which I reached at 9.00 a. m., thence up the shortest stretch of cliff, directly above the end of the big cliff (9.15 a. m.). Ice was melting and made the rocks and moss very slippery. In many places there were handholes only. I worked my way up the rock by aid of a 4-inch crack in the rocks, running upward for several hundred feet, and then reached loose bowlders about 150 yards above the chasm edge. From there on the trip was fairly easy. Arrived on summit about 9.50 a. m. Three of my party arrived by way of the usual trail about an hour later and the rest of the party strung out, the last reaching the top four hours after my arrival.

This route is hard and perilous. One hundred yards is very hard climbing over smooth rock. Would not recommend it for anyone who gets dizzy when looking over a cliff. It is strenuous and should not be attempted unless one is in good condition. physically and mentally, and willing to take a chance.

ANOTHER TRIP UP LONGS PEAK FROM THE NORTH SIDE.

[Report fufrnished by Roger W. Toll, Sept. 23, 1917.]

The regular trail is well known. There are a few other possible routes by which the peak may be climbed, but they are seldom used because they are either indirect or difficult. The north side of the peak would make the most direct route and the object of our trip was to see if this side of the peak could be made suitable for parties by placing ropes in the most difficult places. The decision was not favorable.

Three of us left Longs Peak Inn at 9.30 in the evening, reaching Timberline Cabin at 11.25 p. m., and climbed into our bunks about midnight. We got up at 4.30 in the morning and started at 5.30 a. m. We did not follow the usual trail, but went to the ridge overlooking Roaring Fork, the outlet of Chasm Lake. We followed this ridge, reaching the top of Mount Lady Washington at 8.10 a. m.,

and continued along the ridge at the edge of the chasm, descending about 300 feet, reaching the low point of the saddle at 9 a. m. and the last notch (at the end of the large snow bank) at 9.55 a. m. Up to this point we had made about average time, as the route was all easy. The next 300 or 400 feet is the most difficult.

We had hoped to find the north side of the peak free from ice, but a few early snows had melted and left a glaze of ice over the rocks, while the last powdering of snow still remained and made things bad.

We crossed a small steep snow patch, cutting good steps in the ice with an ice axe, and then started up an angle of the rock face. The handholds were filled with ice and it was difficult to secure footholds even by cutting, as the ice coating was thin and shell-like. We used our rope once. The footing kept getting more precarious and handholes were lacking, but, with the aid of the axe and using the pick point to wedge in the crevice, I worked up the angle, intending to use the rope as soon as I got to a safe footing or a knob of rock about which to wrap the rope. When I got to a fairly good place, it was beyond the reach of our rope. Without the axe it was impossible for the other two men to get up, though they are excellent climbers, and it was also impossible for me to go back over the steep ice-coated rock face, so they reluctantly turned back, carefully retraced their steps and went around to the Keyhole, while I had to go on alone. We had spent two hours and a half on this stretch which was only about 200 feet long, but each step had to be carefully selected.

I had discarded my pack sack on this stretch and it lay below out of reach. It was dislodged by throwing a rock at it and then it rolled and fell some 300 feet below to a point where it was later recovered.

From this point on I found the footing better and went up, intending to avoid the part of the slope directly above the chasm, but the rocks became smooth again, and I had to work to the left for better footing. This steep slope terminates at the lower end in a sheer cliff varying from 1,000 to 1,500 feet or more in height. The flat top of the peak was reached some 200 feet from the cairn. The upper slope of the peak was less easy than I had expected. It was something like the Home Stretch. There were many possible routes but the footing had to be carefully chosen on any of them, and the ice axe was very useful at two or three ice runs. Reached the top at 1.35 p. m. and rested 10 minutes. Went down the regular trail to the Keyhole, where the other men were waiting. There was very little snow or ice on the south side of the peak or in the Trough. Reached the Keyhole at 3 p. m., going slowly, as I was tired. Crossed the Boulder Field and went down Wind River, reaching Sprague's in Bartholf Park, at 7.20 p. m.

We decided that the north side of the peak is too steep and too frequently icy to make a safe or practical route. This route would be less dangerous in July and August, but it should never be attempted when there is ice on the rocks, and it is always unsafe.

The sheer cliff on the north side of Longs Peak has few, if any, equals in the State. On a trip up the peak some 16 years ago, I worked down the slope from the summit to the edge of the cliff. Lying full length and braced with one hand, I dropped several rocks over the edge, and they fell straight down for 10 or 12 seconds before striking at the base of the cliff. The edge of this cliff is a good place to stay away from. It is 2,400 feet from the top of the peak to Chasm Lake, and most of the distance is perpendicular cliff.

OTHER PEAKS ACCESSIBLE FROM LONGS PEAK POST OFFICE.

Mount Meeker (13,911 feet) is about one mile southeast of Longs Peak and is the second highest peak in the Rocky Mountain National Park. The ridge between the two peaks can not be followed because the Notch is practically impassable, but Mount Meeker can be reached from the top of Longs Peak by following a somewhat indirect route. To make this trip, descend to the foot of the Home Stretch, almost to the point where the Narrows begin, then turn to the left and descend to the draw that slopes down from the Big Notch. One should be careful not to try to leave the Home Stretch trail too soon, as the route above described will be found to be easier. Follow the main draw down until you find a practicable route along the base of the cliffs and this will lead you up to the saddle between Mount Meeker and Longs Peak.

If one descends the main draw, going down further toward Wild Basin, an easier route will be found, but the climb to gain the saddle will be increased several hundred feet.

After reaching the saddle northwest of Mount Meeker, there are no difficulties. When seen from the south or east, Mount Meeker appears so smoothly rounded that one is surprised to find that the summit is a sharp ridge several hundred feet long, and that much of the north slope is steep and precipitous. Two points on the ridge are of nearly equal elevation.

Mount Meeker may be reached from Longs Peak post office without difficulty, by following the ridge to the peak leading up from the northeast side. It may also be reached from Chasm Lake, though less easily, as the route must be carefully selected.

Battle Mountain (11,930 feet) may be reached from the usual Longs Peak trail, by leaving the trail shortly before it reaches the Boulder Field and following the ridge northerly for about a mile. It may easily be reached from Timberline Cabin in about one hour. It is more of a ridge than a mountain, but looks quite like an isolated peak when seen from Bartholf Park or other points to the north.

Estes Cone (11,017 feet) is easily reached from Longs Peak post office. The time required is two or three hours from the post office to the top.

There is a trail from Longs Peak post office to Bartholf Park, going over Storm Pass (10,300 to 10,400 feet elevation).

The Twin Sisters (11,436 feet and 11,384 feet, respectively) may be reached by a good trail starting at Longs Peak post office and leading to the North peak, which is the higher of the two. The United States Forest Service maintains a fire-lookout station on the top of the peak, with facilities for observation and communication. The

view is unusually good for a peak of this elevation, because it is comparatively isolated from the main range and presents a wide panorama of peaks to the west, plains to the east, Estes Park to the north and Allens Park to the south.

MOUNT MEEKER (13,911 FEET).

[Report furnished by Dean Babcock.]

Mount Meeker has the general form of a three-sided pyramid. One side, the southeast, is a long, even slope covered with fine rocky débris. The other two faces are more precipitous and irregular. The apex consists of two very sharp peaks of equal altitude, about 600 feet apart, connected by a thin, broken arrete which narrows in places to a mere knife-edge with a precipice on one hand and on the other a slope impassably steep. This unusual summit formation is one of the features of special interest; another feature is the north precipice, with its grandly sculptured buttresses, which form one wall of the double glacial cirque at the head of the East Gorge; and still another, the peculiar Loft, described later. In fact, the peak is remarkable, even unique, in many ways, and would long ago have become more popular with mountain climbers were it not somewhat overshadowed by its slightly higher and far more famous companion, Longs Peak.

Mount Meeker is in some way accessible from every side. Until recently, the occasional parties who gained the summit usually made the entire ascent either by the long, gradual south ridge, or by the east ridge. But either of these routes is long and indirect, and demand hours of tedious climbing over fallen timber and monotonous débris slopes. Undoubtedly the most direct and interesting routes are by way of the East Gorge and the small glacial meadow just below Chasm Lake, both of which approach the peak on the side which appears the most difficult, namely the north or northeast.

To reach the little meadow, one may take the regular Longs Peak trail to timberline, and there, at a point near the Timberline Cabin, branch off on the rough foot trail, well marked with cairns, that leads to Chasm Lake. Traveling this for about a mile and a half, over the moraine, along the south base of Mount Lady Washington and past the top of Columbine Falls, one arrives at the meadow. Just beyond, towers the end of that great bastion which thrusts down into the head of the East Gorge, dividing the Meeker cirque from the Longs Peak chasm. Here leaving the trail and ascending to the left of the bastion, a climb of perhaps a quarter mile brings one well up into the Meeker amphitheater. High on the rim to the westward may be seen that large pocket of permanent snow, shaped like an inverted apron and called by this name, which appears so conspicuously in the saddle between Longs and Meeker as the peaks are viewed from the northeast. One should now ascend directly toward the Apron for perhaps 1,000 feet over smooth rock slopes which, though steep, offer ample foothold, coming at length into a trough in the mountain wall. This trough is ordinarily filled with snow, which may require step-cutting; but at some seasons it is entirely bare and easy of access up to a point about 100 feet below the edge of the Apron, where it narrows up and ends in a vertical and apparently inaccessible chimney. Here, however, one may leave the trough by a ledge or shelf which will be seen leading up and out to the left around the face of the cliff. This ledge, which is several hundred feet long, is steep, uneven and rather narrow in places, but unless covered with ice is not dangerous. It ends in an easy rock slope, over which, turn-

ing again up to the right or westward, one soon emerges in the saddle, at the upper edge of the Apron.

Here one finds instead of a rounded ridge a perfectly level platform called the Loft, a name strongly suggested both by the form and location of the place and by the mode of access to it. Here a short and interesting side trip, with no climbing, may be made by going to the northeast edge of the Loft to a point from which there is an impressive view of the Longs Peak precipice and chasm. Returning then to the south, a short climb over an easy débris slope brings one to the summit—that is, the western apex of Mount Meeker.

This route is by no means easy, and may be a little dangerous in bad weather or at any time of year when there is much snow. Safer and more practical, regardless of season or weather, and hardly less interesting is the second route. For this one should go as before to the little meadow and up about a quarter mile into the Meeker cirque. Now, instead of continuing toward the Apron turn to the left, and high up against the south rim of the cirque will be seen two rounded rock buttresses, appearing from below like detached pillars with a steep passage, a sort of chimney, between them. Climbing now to the base of these buttresses, by any route that seems easiest over the slide rock and ascending the chimney which is filled with broken rock and offers no difficulties, one comes out suddenly on the sharp eastern ridge of the peak at a point about half a mile from the summit, which from here is in sight most of the time. The course is now obviously up along the ridge, keeping as near the crest as possible, but a little on the south side, for the north side is here a sheer precipice. This route leads to the eastern apex of the mountain.

Starting from the Longs Peak Inn or vicinity the round trip to Mount Meeker by either route will require a full day or at least seven or eight hours.

For a trip which is second to none for interest and variety one may ascend the peak by the first route and descend by the second. Evidently, to do this it will be necessary to cross the acute summit ridge from one apex to the other; and, therefore, this trip, as well as the trip by route first described, is recommended only for experienced mountaineers well equipped with ropes and climbing sticks. The other route is suitable at any time for ordinary parties and requires no special equipment.

PEAKS OF THE MUMMY RANGE.

The Mummy Range takes its name from a fancied resemblance to an Egyptian mummy. As seen from Longs Peak or other points to the south, the profile of Mummy Mountain forms the head, Hagues Peak forms the foot, and the rest is left to the imagination.

On some of the early maps the name of Hagues Peak was applied to the point now called Mummy Mountain, but the naming shown on the Geological Survey map will doubtless be followed in the future, and is used here. Hallett Glacier (elevation, 13,200 feet) is frequently made the objective of a trip. It is north of and close to the summit of Hagues Peak (13,562 feet). The present snow and ice field vividly suggest the mighty glacier that in bygone ages helped to carve the peaks of the Mummy Range. Hagues Peak is the highest point of the range.

An automobile road starts from Estes Park village (7,550 feet), near the Elkhorn Lodge, passes up the valley of Fall River, through

Photograph by G. H. Harvey, jr.

THE MUMMY RANGE.

The peaks from left to right are Mount Chapin, Mount Chiquita, Ypsilon Mountain, and Mount Fairchild.

Photograph by W. T. Lee.

HALLETT GLACIER ON HAGUES PEAK, MUMMY RANGE.

Horseshoe Park (8,600 feet), and thence to the present terminus of the road to Grand Lake. The four following trails approach the Mummy Range, and may be used by saddle horses:

1. *Fall River trail.*—This extends beyond the present end of the road and leads to Grand Lake. To reach the Mummy Range the route follows the road as far as the ranger station (elevation, 10,500 feet), from which point Mount Chapin (12,458 feet), Mount Chiquita (13,052 feet), Ypsilon Mountain (13,507 feet), and Mount Fairchild (13,502 feet) may be climbed. Any, or even all, of these peaks may be climbed in one day by this route.

2. *Ypsilon Lake trail.*—This trail branches off from the Fall River road at the upper end of Horseshoe Park, and reaches an elevation of 10,800 feet. The end of this trail is within 2 miles, in an air-line, of the top of Mount Chiquita and Ypsilon Mountain. The east side of these peaks is steep and in places precipitous, but one may pick out a route to the top.

3. *Roaring River trail.*—This trail is the one most frequently used. It branches from the Fall River road at the same point as the Ypsilon Lake trail and follows up the valley of the Roaring River to Lawn Lake (10,900 feet). There is a cabin at Lawn Lake that is maintained by one of the hotels in Horseshoe Park, and one can ascertain before starting just what accommodation is available. The horse trail ends a short distance beyond Lawn Lake. Mount Fairchild (13,502 feet), Hagues Peak (13,562 feet), or Mummy Mountain (13,413 feet) may be climbed in one day from Estes Park, but it facilitates the trip to camp at Lawn Lake and climb one or more of the peaks the following day. Hallett Glacier may be easily reached from Hagues Peak.

Bighorn Mountain (11,473 feet) may be climbed from Horseshoe Park or from a higher point on the Roaring River trail, and Mount Tileston (11,244 feet) is of easy access from the upper portion of the trail.

4. *Trail up North Fork of Thompson River.*—Hallett Glacier and the north portion of the Mummy Range may be reached via road through Devils Gulch (not on map) thence up the north fork of the Thompson River and by trail to Lost Lake (10,500 feet). Horses may be taken beyond Lost Lake and to within about a mile (half-hour walk) of Hallett Glacier.

Mount Dunraven (12,548 feet) and Mount Dickinson (11,874 feet) may be reached either from the trail up the north fork of the Thompson or from the trail that follows the divide between Fox Creek and West Creek. This trail is overgrown and seldom used.

The trail shown on the map up Black Canyon has been closed to protect the water supply of Estes Park village.

MUMMY MOUNTAIN (13,413 FEET).

[Report furnished by Arnold Emch.]

By automobile in 30 minutes from Estes Park to Fall River Lodge. Walk on to the point where the trail to Lawn Lake branches off from the road. Some distance up, the trail to Ypsilon Lake branches off to the left. The distance from Fall River Lodge to Lawn Lake is something like 5½ miles, and the altitude to be overcome in this distance is about 2,400 feet. The time required is from two to three hours. There is a lodge at Lawn Lake (10,900 feet). Accommodations and cooking facilities there are primitive. Visitors may, if they wish, pay for lodging only and provide their own food.

Although the summit of Mummy Mountain is almost directly north of Lawn Lake Lodge, a direct ascent from here is advisable only for experienced rock climbers. The ordinary and easy route is along the trail which continues from the cabin up to the grass-covered ridge opposite Crystal Lake. From here it is advisable to ascend the rock-covered slopes on the right side of the creek which, on the map, is shown to come from figure 2 of 13,562. In this manner the ledges of the southeastern wall of Mummy Mountain are avoided. After these have been passed, it is not difficult to reach the saddle between Hagues Peak and Mummy Mountain. The time from the Lodge to the saddle may be set at about two and a half hours. From here the top of Mummy Mountain can be reached without difficulty in half an hour.

Instead of going down to Lawn Lake by way of the saddle, Hagues Peak may easily be made on the same day. Starting from the saddle, and following the ridge, Hagues Peak may be reached in about one and a half hours. Conversely, Hagues Peak first and Mummy Mountain afterwards is a very good combination for a one-day trip, starting from Lawn Lake and ending at Estes Park.

HAGUES PEAK (13,562 FEET).

[Report furnished by Arnold Emch.]

Follow the trail from Lawn Lake up the ridge opposite Crystal Lake. Instead of going over to the saddle between Hagues Peak and Mummy Mountain, climb the ridge at about the point marked by the letter a in the word Hagues on the map. From here follow the ridge to the top of the mountain, which from Lawn Lake may easily be accomplished in about three hours. From the top it is possible to descend to the glacier without difficulty. This will require from one to two hours (including return to the ridge), according to the time spent in visiting and exploring various parts of the glacier.

The crevasses in the ice are not well developed in the early summer, and do not show up clearly until the beginning of September. This glacier and all others of this region are mere rudiments of former huge ice streams. Hagues Peak is the highest point in the Mummy Range, and affords interesting but easy rock climbing near the top of the peak.

HALLETT GLACIER AND HAGUES PEAK (13,562 FEET).

HORSEBACK TRIP VIA LOST LAKE. AUGUST, 1915.

[Report furnished by Robert Collier, jr.]

Party, 7 women, 7 men, 15 horses.

From Estes Park the party rode east to Devils Gulch. At a point near Glen Haven we went west and north, following an old log road along the north fork of the Big Thompson River for about 2 miles. Then the trail led over to the

North Fork Road. About 2.30 p. m. the party came to the beautiful waterfalls of the North Fork. This well-forested canyon is one of the most beautiful in the park, and one that is very seldom visited. Several bad bogs were encountered, making it difficult for the horses. Some grouse were seen, but no other animals of note. The trail at times would emerge from the dense forest into little Alpine meadows.

The night was spent at Lost Lake. At 5 the next morning all were up. Frost was heavy, and the creek showed signs of ice. After breakfast a couple of horses that knew enough not to be caught delayed matters for some time, but finally at 7.30 a. m. we started for the glacier.

We started south and climbed onto the moraine, which we followed as far as possible with the horses. A beautiful view of Lake Husted, Lake Louise, and Lost Lake was obtained from the moraine. We left the horses at 9 a. m., and walked to the glacier, about a mile distant, arriving there in half an hour. On the way up a fine view of the Sherman Hills of Wyoming was obtained. The lake at the foot of the glacier (elevation 13,200 feet) was frozen, and the ice made a wonderful sight, being colored in many places by beautiful red and blue tints. After a stop at the lake the party went on to the glacier in search of a crevasse. At first sight none were to be seen, but one was finally found that proved to be very beautiful. A small opening led into an immense grotto. It was at least 50 feet high, 100 feet long, and 40 feet wide. From the walls and ceiling hung the most beautiful ice formations. The walls were coated with a heavy white frost that glistened wonderfully when the sun was reflected into this cavern. The ice on the roof had been tilted at various angles and the floor was built up in curious shapes.

From here some of the party returned direct to the horses, while seven of us went to the top of the glacier. Here a most wonderful view was obtained of the Poudre Valley, Clarkes Peak, the Medicine Bow Range, Sherman Hills, North Park, and as far south as Grays and Torreys Peaks. George Barnard and Clyde Smedley climbed Hagues Peak (elevation 13,562 feet) from this point, while the rest of the party returned to the glacier, sliding down most of the way on the snow slope. The horses were reached at noon and we stopped for lunch.

The return start was made at 1 p. m. The divide between Lost Lake and Fox Creek was followed. Here, to avoid a big bowlder field, we descended too low, thus forcing a partial return and a loss of one hour. Finally the old Divide Trail between Fox Creek and West Creek was picked up at 4.10 p. m. We had been traveling three hours above timber line. The trail led down a beautiful timbered slope for a long way. As the trail got down, it gradually became blind. Evidently few people ever use this trail and all of the blazes are overgrown, making it difficult to follow. At last, at 7.30 in the evening, we reached the wagon road about $1\frac{1}{2}$ miles from Glen Haven. From here on we traveled in the dark, reaching Estes Park at 9.30 p. m.

MOUNT FAIRCHILD (13,502 FEET).

[Report furnished by Arnold Emch.]

From Lawn Lake follow the trail in the direction of Hagues Peak. Cross the creek directly east of the ridge of the rock wall north of Crystal Lake; then follow the ridge up to Mount Fairchild, crossing the place marked by letter A in the word Lake on the map, and reach the top over the northern face without difficulty in about two and a half hours. The direct ascent through the gorge of Crystal Lake is possible, though probably difficult. The descent can be made over the same route as the ascent, or down to the saddle between Mount Fairchild and Ypsilon Mountain.

YPSILON MOUNTAIN (13,507 FEET).

[Report furnished by Arnold Emch.]

It is possible to climb down from Mount Fairchild to the saddle between that peak and Ypsilon Mountain in about 45 minutes. Likewise, from the saddle, the top of Ypsilon Mountain may be gained in 45 minutes. On this interesting traverse the rugged ridge between the two mountains must, in the main, be followed. The route to be followed is something like a semicircle, and it requires some steep, although not difficult, rock climbing. The elevation of the saddle is about 500 feet lower than the summits. The last portion of the ascent, over the northern ridge, is over a relatively smooth rock field. The east wall of Ypsilon Mountain is precipitous and is cut by two steep and narrow gulches, filled with snow and ice, which, below, converge to a common branch. These snow-filled gulches resemble the Greek letter Ypsilon in shape and give the mountain its name.

MOUNT CHIQUITA (13,052 FEET).

[Report furnished by Arnold Emch.]

From Ypsilon Mountain Mount Chiquita is, of course, in full view and is reached by following the crest of the watershed that connects the two mountains. From Ypsilon Mountain one has to descend about 600 feet to the saddle, and from here rise again 150 feet or so to the summit of Mount Chiquita. The whole traverse is an easy walk and requires about 45 minutes' time. Those who do not care to continue in the direction of the less important Mount Chapin, but desire additional variety are recommended to descend over the picturesque southeast ridge of Mount Chiquita. This ridge crosses the letter M in the word Mountain on the map and is left just about midway between the letters M and O. From here go toward the small lake directly south of Ypsilon Lake (on the map) and after crossing a bowlder field above the small lake the Ypsilon Lake trail appears. The time from Mount Chiquita to this trail is about one hour.

On our traverse from Mount Fairchild to Mount Chiquita and down to Ypsilon Lake trail, the time was as follows: Lawn Lake, 6 a. m.; Mount Fairchild, 8.30; saddle, 9.45; Ypsilon Mountain, 10.45; Mount Chiquita, 12 (noon); Ypsilon Lake trail, 1; Fall River, 2.30; Estes Park, 5.30 p. m. This traverse is one of the finest one-day climbing tours in the Estes Park region and can be highly recommended to energetic climbers.

MOUNT CHAPIN (12,458 FEET).

[Report furnished by Arnold Emch.]

Mount Chapin may be reached from Mount Chiquita in about half or three-quarters of an hour. Descent to the shelter cabin will take about one hour. The shelter cabin is a good starting point for the climb of Mount Chapin, Mount Chiquita, and Ypsilon Mountain. The entire traverse, including the climbing, in one day, of all peaks from Hagues Peak to Mount Chapin, or conversely, is not at all impossible for energetic mountaineers.

MUMMY MOUNTAIN (13,413 FEET), MOUNT FAIRCHILD (13,502 FEET), AND YPSILON MOUNTAIN (13,507 FEET).

[Report furnished by Roger W. Toll (Sept. 19, 1915).]

Started from Estes Park village at midnight intending to climb Mummy Mountain and return early enough to get back to Denver the same day. Had

hoped to get one or more companions but, being unable to do so, went alone rather than give it up altogether. Certainly do not recommend traveling alone. Followed the line of the water main from the village to the Black Canyon road and thence the trail, which has since been closed, to the head of the canyon, south of Mummy Mountain. This took five hours. The moon set about 1.30, and after that Black Canyon lived up to its name until dawn shortly before 5 o'clock.

The ascent of Mummy Mountain from the southeast side offers no difficulties; in fact, the south or southwest side is the only precipitous part of the mountain. but these cliffs are not a continuous barrier and I understand that the mountain has been climbed from that side.

From the top, the other peaks looked so close that I decided to visit them and so went to the saddle between Mummy Mountain and Hagues Peak and then (not wanting to revisit Hagues Peak) crossed the south slope of the peak, not descending until after passing above a small rock face about due south of the peak.

The north side of Mount Fairchild presents no difficulties. The northeast side of the peak is precipitous and the whole west slope, from Hagues Peak to Ypsilon Mountain, is steep and rugged.

The ridge from Mount Fairchild to Ypsilon Mountain is rough and sharp in places, but the east slope of the ridge offers an easy way around all difficult places. The northeast and east sides of Ypsilon Mountain are precipitous.

The route was above timber line for 9 miles. There was no difficult or dangerous climbing on any part of the route. It was a long, fatiguing, 15-hour trip, and the going over broken rock of assorted sizes for hour after hour became monotonous.

The following is a tabulation of time, distance, and elevation to be climbed, which, for purposes of comparison, might be useful to anyone planning a trip in this vicinity:

Point.	Time.	Scaled distance from preceding point.	Elevation.	Climb from preceding point.
	a. m.	*Miles.*	*Feet.*	*Feet.*
Estes Park village	12.10	.....	7,700	.....
Mummy Mountain	7.40	7.5	13,413	5,713
Saddle between Mummy and Hagues	8.00	.5	12,800	.....
Saddle between Hagues and Fairchild	9.20	1.8	12,300	.....
Mount Fairchild	10.30	1.0	13,502	1,202
Saddle between Fairchild and Ypsilon	11.25	.7	12,600	.....
	p. m.			
Ypsilon Mountain	12.45	.9	13,507	907
Chapin Creek Pass	2.20	2.8	11,400	.....
Shelter cabin on Fall River trail	2.45	.5	10,500	.....
Temporary end of Fall River road	4.45	2.0	9,400	.....
Total	[1] 15.35	9.3	.....	7,822

[1] Hours.

It would have been better to start from Lawn Lake and then all six peaks could be made in one day, or one could shorten the trip as much as desired. Another good way to reach these peaks would be to start from Chapin Creek pass, which will be very accessible after the extension of the Fall River road, and then go over Mount Chapin, Mount Chiquita and Ypsilon Mountain. The return to Horseshoe Park, via Roaring River, can be made without any difficulty from the saddle north of Ypsilon Mountain or from the saddle north of Fairchild. Other routes of descent on this east side would have to be carefully chosen as there are many cliffs.

OTHER PEAKS OF THE CONTINENTAL DIVIDE AND EAST SIDE ACCESSIBLE FROM ESTES PARK.

All of the peaks of the Continental Divide from Specimen Mountain south to Chiefs Head, a distance of 16 miles in an air line (or more if the twistings of the divide are considered), are easily accessible from Estes Park. So also are numerous peaks in this region that lie east of the divide on the Atlantic slope.

A study of the map will indicate the best method of approach to any one of the various peaks. The following trails offer easy means of approach to different parts of this region:

The Fall River trail.—This trail, referred to in connection with the Mummy Range (page 59), continues up valley from the Fall River road, crosses the ridge separating the Thompson River watershed from that of the Cache La Poudre River at an elevation of 11,797 feet, and then descends a thousand feet to Milner Pass (elevation 10,759 feet). This descent to a pass in the Continental Divide is an unusual proceeding and the saddle at the head of Fall River has more of the characteristics that one expects of a continental pass than has Milner Pass.

There is a shelter cabin at Poudre Lakes (elevation 10,700 feet) just east of Milner Pass and one can find protection from the weather here, if necessary. The cabin has a stove and a few cooking utensils.

A trail leads off from here to Specimen Mountain (12,482 feet) and a visit to its so-called crater is of great interest and will repay the slight detour. The volcanic formations are varied and unusual. The distance one way is about 2 miles. After leaving Milner Pass the road descends to the North Fork of Grand River, and joins the river road close to Bob Wheeler's camp, generally known as Squeaky Bob's. The road may be followed to Grand Lake.

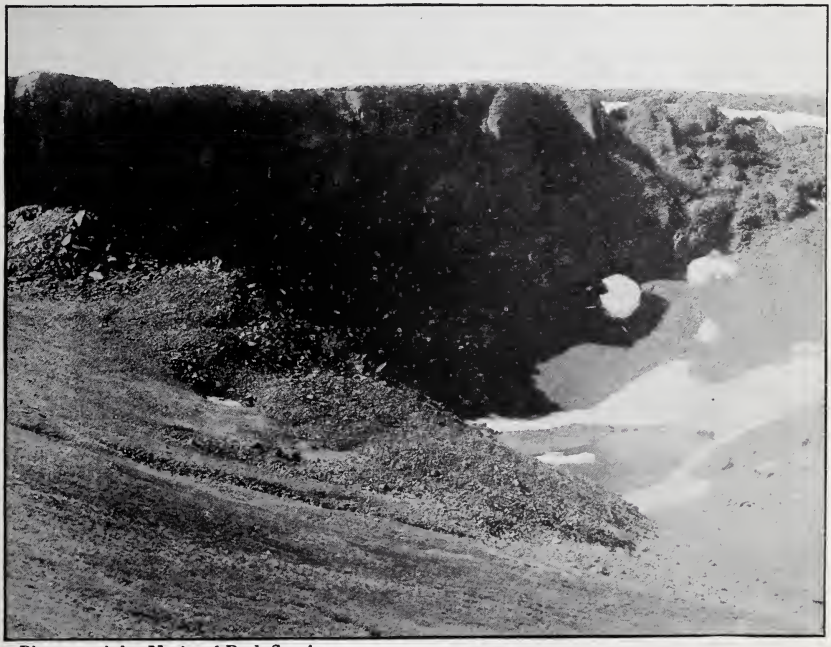
Ute trail.—This trail is less frequented than the Fall River trail but has a splendid scenic location. It starts from the Highline Drive or from Moraine Park and ascends westerly to the top of Trail Ridge. This ridge lies above timberline for about 7 miles and is nearly straight. The highest point on the ridge is at an elevation of 12,400 feet. The Ute trail joins the Fall River trail at an elevation of 11,524 feet at the point where it starts the descent to Poudre Lakes.

Fern Lake trail, via Moraine.—Moraine Park (elevation 8,000 feet) is on the Thompson River and about 5 miles from Estes Park village; it is reached by an automobile road. Several hotels are located in Moraine Park and give convenient access to the beautiful and well-timbered country to the west. The lateral moraine that gives the park its name is south of the park and is about 2 miles long.

The road is passable for automobiles for about half a mile beyond the Brinwood hotel, and at this point the Fern Lake trail begins,

Photograph by Wiswall Brothers.

ON TRAIL RIDGE LOOKING DOWN INTO FOREST CANYON.

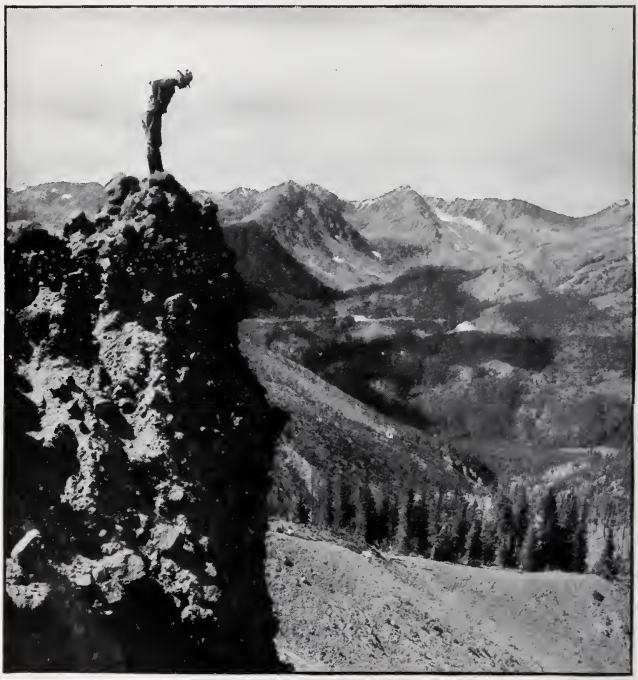


Photograph by National Park Service.

ICEBERG LAKE.

Photograph by Wiswall Brothers.

ONE OF THE POUDRE LAKES IN MILNER PASS.



Photograph by Wiswall Brothers.

SPECIMEN MOUNTAIN.

Showing lava rock, which forms one of the porphyry pillars.

following the stream up to the Pool, 3 or 4 miles distant, near the junction of Forest Canyon and Spruce Canyon and at the foot of Stones Peak (12,928 feet). One may turn to the right up Forest Canyon and reach Terra Tomah Peak (12,686 feet), Mount Julian (12,928 feet), and Mount Ida (12,700 feet). Mount Ida is the only peak on the Continental Divide between Specimen Mountain and Flattop Mountain, a distance of 11 or 12 miles that at this writing bears a name on the map.

One may continue up the Fern Lake trail and secure welcome refreshment and lodging at Fern Lodge (9,600 feet). This rustic shelter, hidden up in the mountains remote from all highways and accessible only on foot or on horseback, is a good starting point for the climb to Stones Peak, Sprague Glacier, or Flattop Mountain (12,300 feet).

Flattop trail.—This is the most direct trail from Estes Park to Grand Lake. From Estes Park village, the road toward Moraine Park is followed for about 4 miles. Shortly after passing, on the left, the road to the Young Men's Christian Association grounds, the road crosses the Thompson River and follows up Mill Creek on the south side of the long moraine. The road ends at the Mill Creek Ranger Station and the trail begins. Bierstadt Lake and Bear Lake are reached by trails branching from this main route. The trail climbs up the ridge on the east side of Flattop Mountain and crosses over the top of the mountain (12,300 feet) and descends on the western slope to the North Inlet and thence to Grand Lake. This trail will be again referred to. It should be here noted that there is a good shelter cabin, built by the National Park Service, near the trail at timberline on the western slope, about 2 miles south of Flattop Mountain. This is a very important shelter in case of storm, and a good starting point from which to climb the peaks in this vicinity.

The top of Flattop Mountain (12,300 feet) is an area without any prominent peak and comparatively flat. It lies north of Tyndall Glacier, is crossed by the Continental Divide, and projects from the divide toward the east as a ridge, with a flattened top over which the trail to Grand Lake passes.

Flattop trail gives easy access to the head of Tyndall Glacier, Hallett Peak (12,725 feet), Otis Peak (12,478 feet), the top of Andrews Glacier, and the more distant Taylor Peak (13,150 feet).

Glacier Gorge trail.—From Estes Park village, take the Mill Creek road to the fork above Glacier Creek, and, turning to the left, follow the road as far as Sprague's Hotel, which is located on the south side of the creek. The road crosses Glacier Creek just below Sprague's and follows the north side of the creek for half a mile or more, and

from the end of the road the trail continues to Loch Vale and the entrance to Glacier Gorge.

From this trail trips can be taken to Tyndall Glacier, Flattop Mountain (12,300 feet), Taylor Glacier, Thatchtop (12,600 feet), McHenrys Peak (13,300 feet), Chiefs Head (13,579 feet), Pagoda (13,491 feet), Longs Peak (14,255 feet), and Storm Peak (13,335 feet. There are 10 big peaks, all within a 3-mile radius of a centrally located camp. The mountain enthusiast can spend a week at one camp and not be able to exhaust the variety of trips that here present themselves. There are all degrees of climbing, easy routes and hard routes. If one is looking for dizzy rock climbing, it comes more than half way to meet him here. Longs Peak may be climbed without difficulty from Glacier Gorge by starting at the very foot of the Trough and joining the usual trail near the head of the Trough. One does not pass through the Keyhole on this route. Glacier Gorge is remote and seldom visited but has, for that very reason, a charm that adds to its great natural beauty.

SPECIMEN MOUNTAIN (12,482 FEET).

[Report furnished by Roger W. Toll (Aug. 28, 1914).]

The principal interest of this mountain is the so-called crater and not the top of the peak. It is well worth a visit because of the unusual geological formation and specimens that are found there and also because of the mountain sheep frequently seen on its slopes. It is on the Continental Divide, 2 miles north of Milner Pass, and easily accessible from the main route between Estes Park and Grand Lake. One can ride a horse up the east side of the mountain to the saddle south of the peak, and within a short walk of the so-called crater, which lies on the west side of the peak. The basalts of various colors, the obsidian or volcanic glass, and the volcanic salve are interesting, as are also the nodules containing agatelike formations.

Our horseback party of four, with Shep Husted, left Estes Park one day after lunch and camped below timber line on the Fall River trail. The next day we reached the Poudre Lakes for lunch and spent the afternoon on Specimen Mountain. After going to the so-called crater I left the others, returned to the Divide, and went north over the three summits of Specimen Mountain and down on the west side of the last peak, returning by way of the crater. There is, however, no particular object in taking the trip that way. Returned to camp at Poudre Lakes for the night.

STONES PEAK (12,928 FEET).

[Report furnished by Arnold Emch.]

From Fern Lake take the trail in the direction of the letter C of the inscription Spruce Canyon on the map. Follow along the base of Castle Rock (between the words Spruce and Canyon on the map), over a blazed trail into Spruce Canyon. The creek will be crossed about at a place marked by the last letter R of the designation Sprague Glacier. After timberline is reached

follow more or less the line of the creek to Hour Glass Lake, below the letter T of the word National on the map. This lake can be reached in two hours by good walkers. From its north shore Stones Peak may be climbed without difficulty in a line of direct ascent over its southern slope in about one and one-half hours. As a line of descent, the southwest ridge down to Sprague Glacier is suggested. From here a visit to Irene Lake, a little above and north of the glacier, should not be missed. From the glacier one may go down to Rainbow Lake, directly east, and then down to Hour Glass Lake in a northeasterly direction. From here the return trip is over the same trail back to Fern Lodge. The time for descending from Stones Peak to Sprague Glacier and down to Hour Glass Lake is about two hours, and depends, of course, upon the length of stops. Even for an easy-going party it should be possible to start from Fern Lodge at 7 a. m. and return by 6 p. m.

Another possibility for a return trip is to go from Sprague Glacier up over the Knife Blade to Flattop Mountain, and from here down through the romantic Tourmaline Gorge. The Knife Blade which is the steep rock ridge forming the wall on the southeast face of the glacier, requires climbing in the true sense of the word, and is therefore the essential feature of this trip. Time required for Knife Blade, three quarters hour; from top above Sprague Glacier to head of Tourmaline Gorge, one and one-half hours. This point is indicated by the letter A in the word Tourmaline on the map. Descent to Tourmaline Lake, going around its northern shore, and crossing a bowlder field, three-quarters hour. From here, there is a blazed trail to Lake Odessa, and by this trail Fern Lake may be reached in about an hour. These times include stops, and may, of course, be shortened or lengthened.

STONES PEAK FROM THE EAST.

[Report furnished by Gustave A. Gambs, accompanied by a guide and two other men, July 30, 1917.]

We started from Fern Lake at 7.30 a. m. Went down Fern Creek trail to altitude 9,000 feet, crossed Spruce Canyon and up north to Black Pool (as black as ink), located on the spur between Spruce and Forest Canyons; then down northwest into Forest Canyon. Followed this up two miles west. The first mile of this canyon was highly interesting botanically. At Raspberry Park (9,150 feet), where Lost Brook comes tumbling down from Stones Peak, we left Forest Canyon, following up on the west side of Lost Brook. Soon the whole Ute trail unfolds before the climber; open forest all the way up, steep but fascinating; at noon we reached an altitude of 11,000 feet, and had before us a good sized cirque, which is deepest to the northwest; the easiest climb to the peak from here is by going southwest, crossing the brook, where the underbrush ends and gaining the eastern crest line of East Stones Peak. We would have preferred the climb through the cirque but the weather was uncertain, and we had to hurry.

From Raspberry Park it took us three and one-half hours to make East Stones Peak. Then into the gap between East and Middle Stones Peaks and down to Hidden River, passing two small lakes and five steep snow fields, where the ice axes were useful. At about 9,800 feet we left the Hidden River to gain the Spruce Trail or Sprague Glacier Trail and were back at Fern Lake at 7.30 p. m. The distance covered was 13 miles, according to the guide. Time required from Fern Lake to Black Pool about one and one-half hours; from Black Pool to Raspberry Park about two and one-half hours; from Raspberry Park to East Stones Peak about three and one-half hours; from East Stones Peak to Fern Lake about 4 hours. Total, 11½ hours.

FLATTOP MOUNTAIN (12,300 FEET), HALLETT PEAK (12,725 FEET), AND TAYLOR PEAK (13,150 FEET).

[Report furnished by Arnold Emch (August, 1916).]

One of the best routes by which to climb these peaks is that from Bear Lake, or from the ranger station, over the trail to Flattop Mountain. From Bear Lake the summit of Flattop Mountain may be reached in about three hours. The same time is required for the climb from Fern Lake to Flattop Mountain. The trail from Fern Lake to Odessa Lake and Helene Lake, and from here to Flattop Mountain, leads through some of the finest scenery in the Rocky Mountain National Park. The upper portion of the crest north of Tyndall Glacier, not far from the trail, offers a magnificent view of Longs Peak. After leaving the trail to Grand Lake, and going around the upper edge of Tyndall Glacier, Hallett Peak which is always in full view may be climbed in an hour. If the starting point is The Loch climb to the Continental Divide above Andrews Glacier, and from there, following the Continental Divide, Hallett Peak may be reached in about one and a half hours.

To get an idea of the time required to cover various distances in this region data of an attempt on Lake Nanita will be given, which Clifford S. Higby and the author undertook in August 1916. Left Fern Lake Lodge 7.30 a. m.; Helene Lake, 9; Flattop Mountain, at head of Tyndall Gorge, 10.30; Hallett Peak, 11.15; and reached a point on the north ridge of Taylor Peak, 1.30 p. m. Our plan was to make Lake Nanita from here as nearly as possible along a direct line. Descending the western slope of Taylor Peak in a southwesterly direction we reached the sheer precipice directly opposite Lake Nanita at about 2.30 p. m. We tried in three different places to force a descent of the wall, but it proved absolutely impossible. Meanwhile heavy masses of fog began to envelop the surrounding rocks and crags, so that we decided to give up the attempt to go down to the North Inlet from this side. At 3.30 p. m. we started on our return trip. The fog was so dense that it was impossible to correctly locate directions.

We tried to retrace our route, and after climbing constantly for a seemingly unreasonable length of time we suddenly discovered by reaching a cairn that we were on the top of some peak. We had lost all sense of direction, and decided that it would be best to wait until there should be a break in the fog to get an orientation by studying the geography of neighboring peaks. Fortunately the masses of fog cleared enough for a moment so that we were able to recognize Hallett Peak in the distance and to make out that we were on top of Taylor Peak. This was at 5.25 p. m. The fog turned into snow and rain, and it was not long before our clothes stiffened with frost. We reached Flattop Mountain at 6.55 and Bear Lake at 9 p. m. We found pleasant night quarters in this comfortable camp. It rained all night and the next day. After a long wet tramp we returned to the village in the afternoon.

Dense fog on the heights comes quickly and sometimes makes it difficult to keep one's bearings. Carry a compass and keep constant watch of your location and the character of the surrounding country. Extra food and clothing should be kept at camp for emergency use or in case of prolonged bad weather.

OTIS PEAK (12,478 FEET).

[Report furnished by Reed A. Higby (July 15, 1916).]

Our party of 10 men and 3 women left Sprague's Hotel, followed the Loch Vale trail to its end, at The Loch, and then went without a trail until we

Photograph by Clark Blickensderfer.

FLATTOP MOUNTAIN AND HALLETT PEAK FROM BIERSTADT LAKE.

Photograph by National Park Service.

HALLETT PEAK FROM FLATTOP MOUNTAIN, SHOWING TYNDALL GORGE.

Photograph by G. H. Harvey, jr.

LONGS PEAK FROM HALLETT PEAK.

Photograph by Wiswall Brothers.

GLACIER GORGE FROM LAKE MILLS.

reached Bear Lake on the return trip. Our course was around the north side of The Loch, up the glacial basin to Glacier Lake; around its north shore and onto Andrews Glacier. Perhaps one-fifth of the way from The Loch to Glacier Lake was made on snow. The pull up the glacier was great sport, although a little strenuous and long for some who were wishing for lunch. It took us 30 minutes to climb and cross the glacier. We then went to the top of Otis Peak.

The descent from Otis Peak to Otis Gorge is thrilling. After skirting the north shore of Lake Haiyaha we cut across to Bear Lake, passing Grant Lake en route. Bear Lake Lodge gave us a glad welcome and a good send off to Sprague's Hotel, where we took the automobiles for Estes Park.

All who took the trip felt that it was one of great interest and beauty, varied in scenery and attractive because it was a circle trip and only 2 miles of trail were retraced on the return. A log of the trip follows:

Place.	Time.	Elevation.	Scaled distance from preceding point.
	a. m.	*Feet.*	*Miles.*
Sprague's Hotel	8.15	8,700	
	8 25		
Miner's Cabin	9.05	9,000	1.75
The Loch	10.20	10,250	2.75
	10.35		
	p. m.		
Glacier Lake	12 10	11,350	2
	12 15		
Top of glacier and Continental Divide	12.50	12,000	1
	1.10		
Otis Peak	1.50	12,478	.50
	2.10		
Lake Haiyaha	4.00	10,375	2.50
	4.15		
Bear Lake	5.45	9,550	2
	6.05		
Sprague's Hotel	6.55	8,700	2.50
	7.00		
Estes Park (by auto)	7.50	7,500	
			15

The walking portion of the trip; that is, from the time we left Sprague's Hotel until we returned, was 10 hours and 40 minutes.

OTIS PEAK FROM THE LOCH.

[Report furnished by Arnold Emch.]

This peak can be reached from The Loch by climbing to the Continental Divide above Andrews Glacier. From this point the top is easily reached in about half an hour.

There are different possibilities for interesting descents from this peak. One can follow the Continental Divide around Hallett Peak to Flattop Mountain, and from here take the trail to Bear Lake or the Government trail to the ranger station; or one can go down to Otis Gorge. For wildness and romantic scenery this gorge offers rare attractions. The descent from the peak to this gorge is made over the northern face, first over patches of snow which can be seen from the village, then through rock gulleys and slides down to Lake Haiyaha. The bottom of the valley in the vicinity of this lake is filled with an indescribable mass of huge bowlders. It takes about an hour from the

top of Otis Peak to reach this lake. From here one can either follow Otis Gorge down to Glacier Creek, or cross the sharp-edged rock field, and the lower end of the ridge coming down, east from Hallett Peak, in order to reach Bear Lake. The trip from Lake Haiyaha to Bear Lake takes an hour and a half and is rather tedious on account of the network of fallen timber.

TAYLOR PEAK (13,150 FEET); AND M'HENRYS PEAK (13,300 FEET).

[Report furnished by Arnold Emch.]

From the heights north of Estes Park village, McHenrys Peak is easily recognized as the prominent peak 2½ miles northwest of Longs Peak. The ridge to the left, connecting McHenrys Peak with Chiefs Head, is jagged and abrupt. Taylor Peak is to the right or 1½ miles northwest of McHenrys Peak. A good way to climb these peaks is to take the Bartholf Park road, and then follow the Government trail along Glacier Creek to The Loch in the lower portion of Loch Vale. Here the shore is followed on the north side of the lake. The southern slope of Otis Peak is then traversed up to timberline until Andrews Glacier is reached. To get to the glacier one can go either to the left or right, immediately below it. On the right side one must climb a steep snow field, leading up to a rock ridge. Use care to avoid slipping on this field. On can pass around on the north side of the lake at the foot of the glacier. Some distance above the lake, the ridge that runs along the axis of the glacier, like a hogback, is reached and followed up to the saddle between Otis and Taylor Peaks.

Starting from the village, Sprague's Hotel in Bartholf Park is reached in an hour by automobile. From here one must allow from two to two and one-half hours to the saddle. From this point Taylor Peak is in full view, and may be climbed over the easy northern slope in one to one and one-half hours. Energetic climbers may reach both Taylor Peak and McHenrys Peak in one day. If one does not intend to climb Taylor Peak at the same time, the northern slope of Taylor should be climbed to about an altitude of 12,800 feet, that of the saddle between Taylor Peak and McHenrys Peak. Keeping at this altitude, the western and then the southern slope of Taylor Peak is followed to the head of Taylor Glacier. From this point McHenrys Peak can then be climbed over its northwestern ridge. The time consumed to climb from the head or top of Andrews Glacier to McHenrys Peak can be estimated at about three hours. This means that climbers who intend to return the same day should make a very early start from The Loch. Another way to the peak is up the whole length of the Loch Vale and over Taylor Glacier. This, however, makes greater demands on the climber.

PEAKS ACCESSIBLE FROM WILD BASIN.

This beautiful and seldom visited area incloses the head waters of the North St. Vrain Creek. It is roughly circular in shape, 6 or 7 miles in diameter, and has an area of 30 or 40 square miles. It is uninhabited except for a few visitors during the summer.

Copeland Lake Lodge (8,300 feet) on North St. Vrain Creek and on the automobile road from Allens Park to Estes Park is located at the eastern portal of Wild Basin. It offers a good starting point for trips up the valley. One may also find hotel and cottage accommodations at Allens Park, some 2 miles farther south.

From a point a mile north of Copeland Lake Lodge, there is an old road that follows up the creek north of Copeland Moraine, crosses over

the Moraine near its head, and leads to Sandbeach Lake, now a reservoir (elevation 10,300 feet). A trail runs from Copeland Lake Lodge up the south side of the Copeland Moraine and joins the wagon road, above referred to, at the head of the Moraine.

Longs Peak (14,255 feet) may be climbed from the south side, starting from Sandbeach Lake and going up Hunters Creek, and following the right-hand fork, finally going up the main trough that comes down from the Notch on Longs Peak. One should go about through the letter O in the word Pagoda on the map. From this trough one may reach the foot of the Home Stretch, which is the last section of the usual trail up Longs Peak. The route is not particularly difficult, but the best route must be carefully selected. The trip is a long one because of the absence of any horse-back trail up Hunters Creek to timberline.

One may climb Pagoda (13,491 feet) by taking the route above described, but, after reaching an elevation of about 11,500 feet, follow the line of the stream shown on the map, and pass about through the letter P in the word Pagoda on the map.

Mount Orton (11,682 feet) may be climbed from Sandbeach Lake in an hour and a half or two hours. Mount Orton is a ridge projecting into Wild Basin, from the crest of which a fine panorama is obtained of the surrounding country in Wild Basin, the row of peaks on the Continental Divide and the rugged south side of Longs Peak.

Chiefs Head may be reached by following the ridge from Mount Orton.

Mount Meeker (13,911 feet) may be climbed from Copeland Lake Lodge, though the trip is slightly longer than from Longs Peak post office.

Most of the trips to the peaks in Wild Basin are too long for one-day trips, if one starts from Copeland Lake Lodge, unless horses are taken as far as the end of the trails. Even then an early start should be made. If one is going on foot, it will be advisable to take a pack horse and make a two-day trip or longer if more than one peak is to be visited. Wild Basin is a splendid location for spending a week's outing.

A road leads from Copeland Lake Lodge about 2 miles up the creek and the lower part of this road is passable for automobiles. A horse-back trail, referred to as the North St. Vrain Creek trail, continues up the valley past some good camping sites, and then forks, one branch going to Ouzel Lake (9,900 feet) and another to Thunder Lake (10,500 feet).

The Thunder Lake trail gives access to several peaks. One may climb the Mount Orton ridge (11,682 feet) and then follow up the ridge and reach Chiefs Head (13,579 feet). The Continental Divide

comes well up on the western slope of Chiefs Head, though the actual summit of the peak is a quarter or a half of a mile east of the divide. The watersheds of the Thompson River, the St. Vrain River, and the Grand River come together on the ridge west of Chiefs Head.

Mount Alice (13,310 feet) may be reached from Thunder Lake by following up the stream west of the lake, or by going north from the lake and following up the ridge to the Continental Divide and then southwesterly up the steep slope and above the dizzy cliff to the top of the peak.

Tanima Peak (12,417 feet) may be reached from Thunder Lake by following up the west inlet of the lake to the Continental Divide, and thence swinging back to the east along the ridge and to the summit. It may be reached more directly by following the west inlet for half or three-quarters of a mile, and then climbing directly to the top of Tanima Peak, but this route is steep and not recommended.

From Thunder Lake a trail runs around the eastern point of the Tanima Peak ridge to Eagle Lake (10,800 feet). Several of these small lakes, including Thunder Lake and Eagle Lake, are utilized as storage reservoirs for water to irrigate land east of Lyons.

From Eagle Lake one may reach Tanima Peak and Mahana Peak (12,629 feet). It is to be noted that the map shows an unnamed point over 13,000 feet in elevation a mile west of Mahana Peak. The trail to Ouzel Lake is marked by signs and easily followed. From Ouzel Lake one may visit the beautiful and interesting lakes named Bluebird, Pipit, and Junco, and may take trips to Mahana Peak, Ouzel Peak (12,600 feet), and Mount Copeland (13,176 feet).

Mount Copeland is probably the favorite climb in Wild Basin. This may be because it projects a mile or two east from the Continental Divide and when seen from the valley below stands out prominently and appears to be even higher than it really is. Mount Alice, Chiefs Head, and Pagoda are all somewhat higher than Mount Copeland, but are dwarfed by their proximity to Longs Peak and thereby lose some of the prestige that would otherwise be theirs. Mount Copeland is easily approached by the horseback trails to Ouzel Lake and Pear Reservoir. Because it projects east of the Continental Divide, the view of Wild Basin and its wall of peaks is unusually fine from the top of Mount Copeland. Prior to the publication of the United States Geological Survey map, Mount Copeland was known as Mount Clarence King, in honor of the eminent geologist who was the first director of the United States Geological Survey and the author of a classic entitled "Mountaineering in the Sierra Nevada." The change of name is regretted by most people who knew the peak as Mount Clarence King.

Photograph by John King Sherman.

MOUNT COPELAND FROM COPELAND LAKE.

Photograph by G. H. Harvey, jr.

OGALALLA FROM MOUNT COPELAND.

PEAKS OF THE WILD BASIN.

Photograph by Wiswall Brothers.

BLUEBIRD LAKE AT THE END OF BLUEBIRD TRAIL.

Photograph by Wiswall Brothers.

A GLIMPSE OF OUSEL LAKE AND OUSEL PEAK, 10 MILES DISTANT ON THE CONTINENTAL DIVIDE.

LAKES OF THE WILD BASIN.

There is a trail from Allens Park to Pear Reservoir (10,500 feet), and from this point Mount Copeland is easily accessible. Ogalalla (13,147 feet) and the two unnamed peaks south of Mount Copeland, whose elevations are 12,381 and 11,546 feet, respectively, may also be reached from Pear Reservoir.

Meadow Mountain (11,634 feet) is easily climbed from Allens Park, or from the trail to Pear Reservoir, or from the North St. Vrain Creek trail. Finch Lake (9,900 feet) is not visible from the Pear Reservoir trail, though close to it. The trail at this point gives a close approach to Meadow Mountain or to Mount St. Vrain (12,162 feet). These two peaks can easily be included in one trip.

The southern boundary of the Rocky Mountain National Park is a straight township line, and includes within the park almost all of Wild Basin. The line runs just south of Meadow Mountain and just north of Ogalalla. Allens Park and Copeland Lake Lodge are not in the park, but a mile or so east of it.

PAGODA (13,491 FEET), LONGS PEAK (14,255 FEET), AND MOUNT MEEKER (13,911 FEET).

[Report furnished by Roger W. Toll, accompanied by Francis E. Bouck (Aug. 9 and 10, 1916).]

Started from the annual outing camp of the Colorado Mountain Club, located in Wild Basin on North St. Vrain Creek, about 4 miles above Copeland Lake Lodge. Left camp at 8.45 a. m. and walked to Copeland Lake Lodge, then started up the side of the Copeland Moraine back to the lodge, and soon struck a trail. Followed this trail to the upper end of the Copeland Moraine, where it ends on Meeker Ridge, and there met the disused road to Sandbeach Lake. Followed the road, which is now impassable for wagons, crossed the creek that comes down from the south slope of Mount Meeker, then Hunters Creek, and reached Sandbeach Lake at 1.20 p. m. The sand beaches, which give the name to the lake, are only visible when the reservoir is partially empty, as it was on this day. Walked around the reservoir and having some time to spare, started toward Mount Orton, reaching timber line at 2.30. Here I met the Mountain Club party, some 45 strong, returning from Mount Orton, and went with them back to Sandbeach Lake, where I met Francis E. Bouck by previous arrangement.

Leaving Sandbeach Lake at 4.30 p. m., we followed up the valley of Hunters Creek and camped at timberline, a couple of hundred yards north of the small lake (not shown on map) at the junction of the two branches of Hunters Creek. It had rained two or three times during the day, but we dried out at a good fire and crawled into our sleeping bags which we had carried up with us from the Mountain Club camp. A short sleet storm at 3 o'clock in the morning ended the unfavorable weather, and the following day was clear and warm.

Pagoda.—We left camp at 6 a. m., leaving behind us bedding and all unnecessary impediments, and went up the rugged, lonesome, and impressive glacial gorge above which towered the peaks of Pagoda, Longs and Meeker. Followed the rock slide between Pagoda and Longs Peak, reaching the saddle between the two peaks without any difficulty, and started up Pagoda, keeping fairly close to the ridge, and reaching the top at 8.30 a. m. This is the easiest approach to Pagoda, and, so far as I know, it can be reached only from this north ridge; the other sides are quite precipitous. Pagoda is seldom climbed, and there was no cairn on top, so we built a small one.

Longs Peak.—On the southwest side of Longs Peak, facing Pagoda, is a long cliff of black rock, 50 to 100 feet high, but broken by gullies near the center of the clifflike stretch. We looked the ground over carefully and picked out the most promising break in the cliff. Followed the saddle ridge to the base of the cliff, going around the sharp gendarmes or sentinel rocks on the ridge. This saddle, by the way, can also be reached from Glacier Gorge by following up one of the several long draws leading to the saddle from the west side. Going easterly from the ridge and ascending but slightly, we reached the break in the cliff and had no trouble in getting up on the rock-covered slope above. It would be somewhat more difficult to go from Longs Peak to Pagoda, than from Pagoda to Longs Peak, since the break in the cliff would be harder to find from above than from below, but anyone going in that direction should descend on the south slope of Longs Peak until the most prominent sentinel rock on the ridge is in line with the saddle north of McHenrys Peak, and then, by going toward the sentinel rock, the break in the cliff will be found. The ridge from Longs Peak toward Pagoda is very ragged and we stayed on the rock-covered slope below until nearly under the Narrows, then, turning west, reached the crest of the ridge not over 200 feet from the head of the Trough. From there we followed the ridge, which is rather dizzy, to the head of the Trough, and thence over the usual trail along the Narrows and Home Stretch, reaching the top of Longs Peak at 10.50 a. m. We probably could have reached the Home Stretch more easily without going over the Narrows, but we wanted to take in that part of the trail which, to my mind, is the most spectacular part of the regular trail up Longs Peak.

We left the top of Longs Peak after signing in the register book, and descended the Home Stretch nearly to the Narrows, and then turned easterly, passing at the foot of some cliffs, and so reached the draw coming from the Notch. The only precaution to be taken on this part of the route is to follow the Home Stretch far enough, and not try to keep close to the foot of the cliffs all the way. I followed up the draw to the Notch and tried to look through, but the Notch is full of big broken rocks, and though I could see the more distant part of Estes Park, I could not squeeze through the last opening between the rocks far enough to look down into Chasm Lake. No doubt a fine view could be obtained from a point in the Notch a few feet westerly from where I was, but the whole pile of rock in the Notch gave such an impression of being loose and treacherous that I tried no more experiments.

We then descended the draw for a short distance, and I have no doubt at all that this main draw affords an easy way of descent into Wild Basin. In fact, the route up or down Longs Peak, by means of this draw, does not, I feel sure, offer any greater difficulties than the usual route through the Keyhole. A party would have to be careful not to start rocks rolling down the draw, but this is also true of the Trough, and the danger of rocks falling from the cliffs towering above is probably more imaginary than real.

Mount Meeker.—We soon left the main draw (the one leading to the Notch) and kept fairly close to the base of the cliffs, descending all the time, but working toward Mount Meeker. At 12.30 p. m. we turned up a small draw or gorge, and, after a little rock scrambling, reached the top of the draw and thence over open ground to the saddle between Mount Meeker and Longs Peak. We had intended to go farther down the slope of Longs Peak, and then up the rock slide leading to the Mount Meeker saddle, and I believe such a route would be easier going, though it would have a few hundred feet more rise and fall.

The top of Mount Meeker was reached without event at 1.35 p. m. For a mountain that gives such an appearance of smooth, even slopes and easy

walking as Meeker does from the east, the top ridge is quite a surprise. For several hundred feet this ridge is a narrow rock crest with steep, almost precipitous slopes on either side. There are two points of practically equal elevation toward the westerly end of the ridge. At 2 p. m. we started down and followed the southwesterly ridge of Mount Meeker, going around several jagged knobs, and reached our camp at timberline at 4.15 p. m. Enjoyed a rest until 5 p. m.; then, carrying our sleeping bags, we started for the Mountain Club camp, going to Sandbeach Lake, thence down the outlet to the meadow below, thence across a saddle to the south and along a faint trail in a southwesterly direction to two small lakes not shown on the map, where we lost the trail and struck down hill to the Thunder Lake trail. Reached the camp at 8.15 p. m.

Pagoda is very rarely climbed, because of its inaccessibility from ordinary starting points. Few people go from Longs Peak to Mount Meeker, or vice versa, because either one alone is usually considered to be a full day's trip. The principal reason more people do not climb Longs Peak from the south is that there is as yet no horse trail near the peak on that side, Sandbeach Lake being the nearest point of approach by horseback in that direction. Also the route is not so well known as the usual Keyhole trail.

Log of trip to Pagoda, Longs Peak, and Mount Meeker.

Place.	Time reached.	Time from last-mentioned place.	Length of stop.	Elevation shown by map.	Elevation climbed from last-mentioned place.	Distance from last-mentioned place scaled from map.
Aug. 9:	*a. m.*	*h. m.*	*h. m.*	*Feet.*	*Feet.*	*Miles.*
Left Colorado Mountain Club camp	8.45	.....	.....	8,800	.....	.....
Copeland Lake Lodge	10.10	1 25	45	8,300	.....	3.2
	p. m.					
Creek	12.10	1 15	15	9,400	1,100	2.2
Hunters Creek	12.50	25	.....	9,500	100	.7
Sandbeach Lake	1.20	30	.....	10,300	800	1.1
Around lake	1.35	15	.....	10,300	.....	.4
Timberline on Mount Orton	2.30	55	20	11,060	700	.3
Sandbeach Lake	3.30	40	1 00	10,300	.....	.3
Timberline camp	6.30	2 00	.....	11,100	800	1.5
Total	[1] 9 45	7 25	2 20	.....	3,500	9.7
Aug. 10:	*a. m.*					
Left timberline	6.00	.....	.....	11,100	.....	.....
Saddle between Pagoda and Longs Peak	8.00	2 00	.....	13,200	2,100	1.4
Pagoda Peak	8.30	30	30	13,491	291	.2
Saddle between Pagoda and Longs	9.20	20	.....	13,200	.....	.2
Top of Trough	10.25	1 05	.....	14,000	800	.5
Top of Longs Peak	10.50	25	20	14,255	255	.2
Below Notch	11.35	25	.....	13,500	.....	.4
	m.					
Detour to Notch and return	12.00	25	.....	13,500	200	.2
	p. m.					
Low point of route	12.30	30	.....	13,000	.....	.1
Top of draw near Meeker	12.40	10	.....	13,200	200	.1
Saddle between Longs and Meeker	1.00	20	.....	13,400	200	.1
Top of Meeker	1.35	35	25	13,911	511	.3
Timberline camp	4.15	2 15	45	11,100	.....	1.4
Sandbeach Lake	6.00	1 00	.....	10,300	.....	1.5
Lakes	7.15	1 15	.....	9,500	.....	1.3
Ouzel Lake trail junction	7.45	30	.....	9,300	.....	.3
Colorado Mountain Club camp	8.15	30	.....	8,800	.....	1.5
Total	[1] 14 15	12 15	2 00	.....	4,557	9.7
Total for both days	[1] 24 00	19 40	4 20	.....	8,057	19.4

[1] Hours and minutes.

MOUNT ORTON (11,682 FEET) AND CHIEFS HEAD (13,579 FEET).

[Report frunished by Roger W. Toll, accompanied by Carle Whitehead (July 7, 1916).]

Chiefs Head is the third highest peak in that part of the Front Range lying north of Berthoud Pass; Longs Peak and Mount Meeker take first and second place. On account of its proximity to Longs Peak, Chiefs Head does not appear to be as high as some of the more isolated peaks farther south. It is at the junction of the ridge connecting Longs Peak with the Continental Divide. The top of the peak is probably a quarter of a mile to the east of the divide. Chiefs Head is on the ridge separating the watersheds of the Thompson and the St. Vrain Rivers, while the watershed of the Grand River comes well up on the side of the peak. The peak affords an extensive view of plains, parks, and peaks. It overlooks Glacier Gorge and Wild Basin and gives a good view of the steep southern sides of Longs Peak, 2 miles distant.

Mount Orton is the southeasterly point of a high ridge and this ridge affords an excellent panorama of the rugged peaks encircling Wild Basin.

The following is the report of a scouting trip, preliminary to the 1916 annual outing of the Colorado Mountain Club:

The preceding night had been spent in a temporary camp at Ouzel Lake (9,900 feet). We left camp at 7.30 in the morning and followed the trail across North St. Vrain Creek (9,400 feet) to the trail leading to Thunder Lake. Followed this trail to a point where there are small log bridges across four branches of the creek, all within 150 feet of each other. This is not far from the point on the map where the creek from Thunder Lake joins the main stream. Followed the main stream northerly from this point, passing beautiful cascades and waterfalls to a small lake on a high bench near timberline. Left the creek and climbed Orton ridge, reaching the crest of the ridge at a point half a mile northwest of Mount Orton. About a mile of the ridge is nearly level, having half a dozen small knobs of nearly the same elevation. We did not go to the Mount Orton end of the ridge, but northwest along the ridge and up the slope to the top of Chiefs Head. The day was warm and the air was mild, even on the summit.

We then went to the saddle southwest of Pagoda. At this point a long steep trough leads down into Glacier Gorge and forms a feasible method of getting into this gorge from Wild Basin. The ridge up Pagoda from this saddle is steep and ragged. The south side of Pagoda is flanked with precipitous cliffs. On the west side of Pagoda there are ledges that can be followed for some distance, but we did not go far enough to determine whether or not Pagoda can be reached from its west side.

Returning to the saddle, we went easterly, slid down a snow bank (avoiding a small projecting ledge) to a beautiful ice lake, and then followed Hunters Creek to its junction with the creek from Longs Peak. Half a mile farther climbed over the shoulder of Mount Orton and descended to Sandbeach Lake. This is in a typical moraine formation, with a tract of burned and fallen timber to the north of it. Wild Basin has large tracts of splendid timber and this is one of the few burned districts.

From the lake we followed the road, which is now only a fair horseback trail, to a point where the road crosses Meeker ridge, and went down from there to the scouting party's camp, about 1½ miles west of Copeland Lake Lodge. There are a number of small lakes in addition to those shown on the map, particularly on the west side of Mount Orton.

Log of trip.

Place.	Time reached.	Length of stop.	Elevation shown by map.	Distance from last-mentioned place.
	a. m.	*h. m.*	*Feet.*	*Miles.*
Left Ouzel Lake	7.30	.....	9,900	.....
North St. Vrain Creek	8.15	.....	9,400	1.2
Thunder Lake trail	10.10	.....	10,300	1.9
Timberline	11.00	10	11,000	1.0
Top of Orton ridge	11.55	50	11,600	.2
	p. m.			
Chiefs Head Peak	2.40	45	13,579	1.5
Saddle between Chiefs Head and Pagoda	4.05	.....	12,800	.5
North side of Pagoda and return to saddle	4.30	.....	12,800	.4
Timberline at Hunters Creek	6.00	.....	11,000	1.5
Sandbeach Lake	7.00	.....	10,300	1.5
Camp near Copeland Lake	8.30	.....	8,300	3.3
Total	[1] 13	1 45	.....	13.0

[1] Hours. Elevation climbed, 5,000 feet.

CHIEFS HEAD (13,579 FEET).

[Report furnished by Miss Agnes W. Vaille, accompanied by Miss Edna Smith (Sept. 4, 1915).]

We left camp at Thunder Lake about noon and climbed northwest to a long ridge which brought us on to the Continental Divide between Chiefs Head and Mount Alice, rather nearer Mount Alice. From there we went along the top of the Divide to the top of Chiefs Head and returned by the same route. It would have been easy to climb Mount Alice also from the point where we reached the Continental Divide, and both Mount Alice and Chiefs Head could easily be done in a day. We did not climb Mount Alice, however, because the rain and clouds would have shut off all the view, and we had rather too late a start. We reached Thunder Lake again about 6 o'clock.

MOUNT ALICE (13,310 FEET), LAKE NANITA, AND TANIMA PEAK (12,417 FEET).

[Report furnished by Roger W. Toll, accompanied by Thurlow Lacy and Theo. K. Bushnell * (Aug. 11 and 12, 1916).]

* Theo. K. Bushnell was mortally wounded, in action, and died in France, October 9, 1918.

After dinner, we left the Colorado Mountain Club camp, on North St. Vrain Creek, and with our sleeping bags, walked up the trail toward Thunder Lake for two hours or more, and then unrolled the bags and crawled in. The object of this night trip was to get an early start the next morning. We got down at dawn (4.30) and after caching our sleeping bags under a rock, passed Thunder Lake and struck northward up the timbered slope, brilliant with flowers of many varieties. The large yellow lily, known as the "dog-toothed violet," worthy

companion of the columbine, grows in profusion in this region, and during the blossoming season (July and early August) would well repay a long trip. They are abundant in many parts of Wild Basin but nowhere more plentiful than here. The slope led to a timberline plateau, and from there we started up the ridge between Mount Alice and Chiefs Head. Came in sight of a lake on the north side of the ridge with a large snow field running into it and terminating in a snow cliff 20 or 30 feet high at the edge of the lake. We waited while Lacy went down to get some photographs, and then went on up the ridge to the Continental Divide.

The crest of the Divide north of Mount Alice is quite narrow in places, but presents no difficulties. The north side of Mount Alice, as seen from the ridge below, appears very steep and the loose rock on it looks as though it might, on the slightest provocation, go sliding over the cliff into the abyss below. This feeling gives one rather a nervous sensation while on the north side of the peak; but actually most of the rock is firmly lodged and gives good footing, though a large party would find the south side of the peak a better way of approach. After resting a few minutes, we started west, descending gradually on the south side of the ridge, hoping to get a view of Lake Nanita. One ridge after another hid our view, and we had gone a mile before we could see into the lake.

This lake, which since has been made accessible by trail, from the Flattop trail, is on a bench 1,000 feet above the North Inlet. There was a story that the lake had never been visited, so we decided to make its acquaintance and followed the ridge down to the saddle between the North Inlet and East Inlet Creeks and from there into the head of a valley that we termed Boulder Pit. This is located just south of the letter E of the word Andrews on the map. This pit suggests recent glacial action, as the moraine has only a few young spruce growing on it, and the stream, a fairly good-sized one, is completely buried for a couple of hundred yards under a large pile of bowlders that make a sort of pocket out of the head of the valley. We then went up a saddle to the northwest and saw Lake Nanita below us. Three mountain sheep, not welcoming our visit, clambered with considerable difficulty up the clifflike face of Andrews Peak and nearly to the top of the peak. After enjoying the exhibition and envying their climbing ability we went down to the lake and made a small cairn at the inlet. The gorge on the northwest side of Andrews Peak, tributary to Lake Nanita, is extremely rugged, wild, lonesome, and impressive.

It had begun to rain and we had no time to explore the lake more thoroughly, so started back to camp, which was 7½ miles in an air-line, while Grand Lake was not over 5½ miles in a direct line from the lake. We reached the Continental Divide at the saddle between Mount Alice and Tanima Peak. As Tanima Peak is only 400 or 500 feet above this saddle, we decided to visit it on the return route. There was no difficulty except that at a narrow point in the ridge, 100 feet or so west of the top, all the rocks including some large ones, seemed anxious to slide when we stepped on them. We got on top shortly before 6 o'clock and gave up the plan of following the Tanima Ridge down to Thunder Lake, as the rain and clouds hid any distant view and made difficult the selection of the best route. So we returned to the narrow part of the ridge, above referred to, and went down the steep draw to the north.

This was the most difficult climbing of the day. The loose rocks started easily and went bounding down ahead of us at a high speed. Several times we had to work around small cliffs and were much relieved to get out of the shifting clouds and into the valley below. Returned to Thunder Lake and later picked up our sleeping bags and followed the trail, in a white mist, to camp

which we reached at 9.15 in the evening. From start to finish it was a 16-hour trip, and a long one, too long for one day.

From the top of the Tanima Peak we caught a glimpse of an ice lake on the north side of Mahana Peak, west of Eagle Lake. The elevation of this lake is 11,800 feet, and the following day, August 13, George C. Barnard, Clifford S. Higby, and I visited it. In July many of the lakes above timberline are partly covered with ice. By the middle of August most of these lakes have lost their ice floes, but the one on Mahana is an exception, and I believe has snow on its banks and floating ice in the lake all through the summer.

The only comment on the map (which is excellent) is that there are about a dozen small lakes in the timberline region, east of Mount Alice, that are not shown. It should also be noted that the local names of the lakes differ from the map names and are given below to avoid the confusion that might result:

Thunder Lake is locally known as Green Lake.

Eagle Lake is locally known as Long Lake.

A lake not shown on the map, lying northeast of Thunder Lake, is locally known as Thunder Lake.

A log of the trip follows:

Log of trip to Mount Alice, Lake Nanita, and Tanima Peak.

Place.	Time reached.	Time from last mentioned place.	Length of stop.	Elevation shown by map.	Elevation climbed from last-mentioned place.	Distance from last mentioned place.
Aug. 11:	*p. m.*	*h. m.*	*h. m.*	*Feet.*	*Feet.*	*Miles.*
Left Colorado Mountain Club camp	7.45	.....	.....	8,800	.....	.....
Temporary camp	10.00	2 15	.....	10,500	1,700	2.9
Total	[1] 2.15	2 15	.....	.....	1,700	2.9
Aug. 12:	*a. m.*					
Left temporary camp	5.10	.....	.....	10,500	.....	.....
Breakfast stop	5.25	15	1 20	10,700	200	.5
Four bridges	6.50	05	.....	10,600	.....	.2
Thunder Lake	7.00	10	05	10,600	.....	.3
Timberline plateau	7.50	45	.....	11,000	400	.5
Near Snow Lake	8.40	50	20	11,500	500	.5
Continental Divide	10.00	1 00	.....	12,500	1,000	1.0
Top of Mount Alice	11.00	1 00	.....	13,310	810	.5
Boulder Pit	.....	.....	.....	10,700	.....	2.0
	p. m.					
Saddle Southeast of Nanita	1.45	2 45	10	11,400	700	.5
Lake Nanita	2.35	40	10	10,700	.....	.5
Saddle Southeast of Lake Nanita	3.25	40	.....	11,400	700	.....
Boulder Pit	3.45	20	.....	10,700	.....	.7
East Inlet Saddle	4.25	40	.....	11,400	700	.6
Top of Tanima Peak	5.55	1 30	.....	12,417	1,017	2.2
Thunder Lake	7.10	1 15	.....	10,600	.....	1.0
Temporary camp	7.40	30	.....	10,500	.....	1.0
Colorado Mountain Club camp	9.15	1 35	.....	8,800	.....	2.9
Total	[1] 16 05	14 00	2 05	.....	6,027	15.6
Total for trip	[1] 18 20	16 15	2 05	.....	7,727	18.5

[1] Hours and minutes.

MOUNT COPELAND (13,176 FEET).

[Report furnished by Henry F. Brooks (Aug. 10, 1916).]

Number in party, 41—16 men and 25 women.

Our party started at 7.15 a. m. from camp (elevation about 8,700 feet) on the North St. Vrain Creek, below the mouth of Cony Creek. We reached the point where the Ouzel Lake trail forks to the left from the Thunder Lake trail, at 7.45 a. m. and reached Ouzel Lake (9,900 feet) at 9.15 a. m,

On a preceding trip, one member of the party had complained that the pace was much too slow to suit him, so he was promised a faster trip up Mount Copeland. Accordingly, our party divided at Ouzel Lake, nine of the "fire eaters," led by Reed A. Higby, starting ahead and the rest of the party following more leisurely. The leader of the fast party reached the top at 11.17 a. m., having climbed the 3,200 feet from Ouzel Lake to the summit in two hours and two minutes. The member for whose benefit the trip was speeded up, arriving among the last of this first party. Most of the main party reached the top at 12.45 p. m., or three hours and a half after leaving Ouzel Lake, although some did not arrive until two hours later, having taken five and a half hours for the climb. The above shows the widely varying lengths of time that different people require on a climb, and the difficulty of stating standard time schedules that will suit all needs.

Mount Copeland is a fairly easy mountain to climb, as there is grass and soft footing most of the way up. The top is rocky.

MEADOW MOUNTAIN (11,634 FEET), AND MOUNT ST. VRAIN (12,162 FEET).

[Report furnished by Roger W. Toll (Aug. 11, 1916).]

Number in party, 13—6 men and 7 women.

The party left camp on North St. Vrain Creek at 8.20 a. m., and followed the new trail up Cony Creek to the beautiful falls of that stream. The trail was uncompleted beyond that point. Our route lay through the Engelmann spruce, lodgepole and limber-pine forest that covers such a large portion of Wild Basin. We ate part of our lunch on Meadow Mountain and the rest on Mount St. Vrain. Had a short slide on one of the two snow fields on Mount St. Vrain and made the most of the drinking water below the snow field. The one canteen in the party was welcome on the summit. The view of Longs Peak and the range south to Mount Audubon was first class. We could see the trail over Buchanan Pass; also the St. Vrain glaciers and all of Wild Basin. Found Finch Lake on the return without difficulty, although it is not visible from the Allens Park-Pear Reservoir trail. The map shows no inlet to Finch Lake, but there is a small one on the southeasterly side.

At Finch Lake the party separated into two sections, one reaching camp at 6.15 and the other at 6.40 p. m.

The log of the trip is as follows:

Place.	Time reached.	Length of stop.	Elevation shown. map.	Distance from last-mentioned place.
	a. m.	*h. m.*	*Feet.*	*Miles.*
Left camp	8.20		8,800	
Cony Creek	8.45		9,300	0.7
	p. m.			
Meadow Mountain	12.15	40	11,634	2.0
Saddle	1.15		11,200	.5
Mount St. Vrain	2.15	35	12,162	.9
Finch Lake	5.20	10	9,900	1.7
Camp	6.30		8,800	1.7
Total	[1] 10 10	1 15		7.5

[1] Hours and minutes.

Elevation climbed was 3,800 feet.

Photograph by G. H. Harvey, jr.

PAIUTE PEAK (LEFT) AND RIDGE FROM SHOULDER OF MOUNT AUDUBON.

Photograph by G. H. Harvey, jr.

SNOW CORNICE ON RIDGE BETWEEN THE ST. VRAIN GLACIERS.

PEAKS ACCESSIBLE FROM MIDDLE ST. VRAIN CREEK.

The area forming the headwaters of the Middle St. Vrain Creek is reached through Ward or Allens Park. From the automobile road connecting these two places and about 4 miles north of Ward, a road turns off toward the west, bearing the sign Stapp Lake. This road is passable for automobiles. It crosses the dam of Beaver Reservoir, passes the forest ranger's station, and reaches Stapp Lake, where there is a hotel and outing resort. Visitors will be met at Ward, if such an arrangement has been previously made, and driven to Stapp's Hotel.

Mount Audubon (13,223 feet) is the principal peak in this region and lies a mile east of the Continental Divide. It can easily be climbed in a day from Stapp's Hotel.

The trail over Buchanan Pass (11,700 feet) runs from Stapp's Hotel to Monarch Lake, on the western slope. The distance is 16 miles and can be made in a day. This is the only horseback trail across the Continental Divide between Arapaho Pass on the south and the Flattop trail on the north, a distance of more than 25 miles, measured along the Divide.

Just south of Buchanan Pass is Sawtooth Mountain (12,304 feet), which gets its name from the profile of the peak, which has a perpendicular cliff on the south side and a rounded slope on the north side.

The other peaks whose slopes rise from the Middle St. Vrain Creek, and whose summits may be reached from this valley, are Mount St. Vrain (12,162 feet), Ogalalla (13,147 feet), and Paiute Peak (13,082 feet). There are several unnamed peaks on the Continental Divide between Mt. Audubon and Ogalalla.

MOUNT AUDUBON (13,223 FEET).

[Report furnished by George H. Harvey, jr. (July 2, 3, and 4, 1916).]

Number of persons on trip, 11; 8 men and 3 women.

We took the train to Ward. From there walked about 4 miles north on the regular Estes Park auto road, then turned off to the west and followed the road to within half a mile of Stapp's Hotel, where we made our camp (9,300 feet). Good camp site. Fine water, plenty of wood. To climb Mount Audubon, pass Stapp's Hotel and follow the stream to a sawmill half a mile beyond. Take the log road to the south, connecting with a well marked trail to the summit of Mount Audubon. The trail is good and there is plenty of water all the way. It is a pleasant climb, and the lower part of the trail leads through fine timber.

The approximate length of the round trip from Beaver Reservoir is 15 miles, and the elevation climbed is 4,000 feet. The actual walking time was about 9 hours, not including 2 hours spent on top of the peak.

PEAKS ACCESSIBLE FROM WARD.

The part of the Front Range from Arapaho Peaks, north to Mount Audubon, a distance of 6 miles, is called, collectively, The Arikarees.

These peaks and pinnacles form one of the most rugged and forbidding parts of the mountains in this region, and it is difficult to find in the whole Front Range any stretch of country that can equal it in abrupt cliffs, sharp peaks, torn and ragged ridges and general wild and savage appearance.

Ward is a mining town with more past than present activity. It is located at an elevation of 9,253 feet, and most of the streets are steep and hilly. Practically all of the Arikaree country is within a radius of 8 miles from Ward, so that this town is a good starting point from which to reach the little known and seldom visited rampart of peaks bristling up only a few miles to the westward.

The road from Ward, past Redrock Lake to Brainard Lake, connects with the United States Forest Service trail up Mount Audubon (13,233 feet) and brings one within reach of Paiute Peak (13,082 feet) and Pawnee Peak (12,900 feet). If one continues on the trail above Brainard Lake, past Long Lake to Lake Isabelle, he is then within reach of Pawnee Peak and the steep north side of Navajo Peak (13,406 feet).

Bald Mountain (11,453 feet) is a point on the ridge leading from Navajo Peak, and seems of greater importance when seen from Ward than when looked down upon from any of the higher vantage points to the west.

PAIUTE PEAK, 13,082 FEET.

[Report furnished by Arnold Emch, accompanied by son, Walter Emch (Aug. 17, 1916).]

This peak may be ascended along the eastern face of Paiute Horn, thence to the top. It may also be reached from the top of Mount Audubon, which is the least troublesome route, and the one that we took. From Mount Audubon one has to go down about 300 feet to the lowest depression in the rugged but solid ridge connecting the two summits. The ascent of Paiute Peak from this saddle is an interesting, but not difficult, climb over a solid ridge formation. The top of Paiute Peak is much more interesting than that of Mount Audubon. We placed the Colorado Mountain Club register on Paiute Peak. The wind on the heights was ferocious. The descent over the southeastern face of the mountain requires careful going. Steep ledges and snow fields alternate clear down to the magnificent lake at the foot of both Paiute Peak and Paiute Horn. In a number of places steps had to be cut in order to pass down the snow slopes between the ledges. In the early season when great masses of snow are still embedded between the rocks, a direct descent as we made it is only advisable when aided by an ice pick. The time schedule for the trip was as follows:

Left Ward, 4.40 a. m.; Redrock Lake, 5.35; Brainard Lake, 6.05; end of United States Forest trail, 6.30; Mount Audubon, 8.50; left Mount Audubon at 9.30; saddle, 10; Paiute Peak, 10.30; left Paiute Peak, 11; down at lake at foot of peak, 12.30 p. m.; back in Ward at 5 p. m.

To have more time and leisure it would be advisable to stay over night at Brainard Lake and start early in the morning from this point.

PAIUTE HORN (12,900 FEET).

[Report furnished by Arnold Emch, accompanied by son (July 24 and 25, 1915).]

From Redrock Lake west of Ward, Paiute Horn appears as the most prominent and interesting elevation of the range; it is located between Pawnee Peak and Paiute Peak. Paiute Peak is not visible from Redrock Lake as it is hidden from view by Mount Audubon. I do not know of any previous ascents of Paiute Horn, which lies three-quarters of a mile south of Paiute Peak (13,082 feet) and half a mile north of Pawnee Peak. On account of its shape and proximity to the higher Paiute Peak, I named the mountain Paiute Horn.

We left Ward at 8.45 a. m., got to Redrock Lake at 9.45, and to Brainard Lake at 10.45; from here we followed the Mount Audubon trail, which was in course of construction by a United States Forest Service party. The trail starts directly north of Brainard Lake (elevation 10,300 feet). After proceeding approximately along the 11,000 contour line to a place on the south side of the creek, we stopped for lunch at 12.30 p. m. We then made a reconnoitering climb on the ridge leading from Brainard Lake up to Pawnee Peak. High up on this ridge we came to a number of crags and rock towers which seemed to make this route over Pawnee Peak to Paiute Horn impracticable. We returned and at 5 o'clock reached a convenient camping place just at timber line, where firewood was available.

The next morning we broke camp at 5 o'clock. Our plan was to climb Paiute Horn over the south ridge that connects it with Pawnee Peak, so we kept along the north face of this latter peak. A great number of snow fields and rock ledges had to be traversed before the highest lake directly east of Paiute Horn was reached. Great masses of ice were floating on this lake. A series of rocky barriers and snow fields have to be climbed before the saddle between Paiute Horn and a minor elevation south of the Horn can be reached. From this saddle a steep ridge formed of huge bowlders leads up to a big snow cornice which required the cutting of steps and careful going.

The summit was reached at 8 a. m. The western face consists of an immense precipice, and a sharp depression or notch, in the north ridge, interrupts the line over to Paiute Peak. We stayed an hour and a half on this magnificent mountain and then returned in two hours to our camp. At noon we left this bivouac and after spending some time at Brainard and Redrock Lakes, returned to Ward a little after 5 p. m.

PAWNEE PEAK (12,900 FEET).

[Report furnished by Arnold Emch.]

On the map this peak is marked by the angle in the boundary line between Grand and Boulder Counties, a little northeast of the letter K of Pawnee Peak. We left Ward in the forenoon in the direction of Redrock Lake, Brainard Lake, Long Lake, and Lake Isabelle, where we intended to camp out during the night. A very heavy thunder and rain storm compelled us to retire down to the unattractive cabin on Lake Isabelle, where we spent an uncomfortable night. The next morning was clear and we started at 5 a. m. from the cabin. The route was along the snow fields, rock ledges, and bowlder fields on the south side of the creek, and is not at all difficult. After reaching the top of Pawnee Peak we descended on the northeast face toward the beautiful lake. From here we followed the creek down to Mitchell Lake (not named on the

map, but south of the contour designation 11,000), went around it on the north side; going directly east we soon struck the newly built Government trail to the top of Mount Audubon, starting from the north shore of Brainard Lake. We got back to Ward at 5 o'clock in the afternoon.

This traverse of Pawnee Peak from Lake Isabelle to Mitchell Lake, although easy, is one of the most interesting trips in this region. It involves alternately the crossing of snow fields and rock walls with constantly changing situations. Above Mitchell Lake one must be careful in selecting a proper passage through the swampy high moors and the bothersome underbrush. Go right through it, and don't say much about it.

PEAKS ACCESSIBLE FROM NORTH BOULDER CREEK.

The principal starting points for trips in this region are Silver Lake or (still higher in the string of lakes) Lake Albion or Goose Lake. Several of these lakes are now reservoirs. This area furnishes the excellent water supply for the city of Boulder and is under such regulations as will insure the purity of the supply. These regulations allow the use of certain cabins at Silver Lake, but discourage camping in the area above, unless special permission is obtained.

Silver Lake may be reached from Glacier Lake, Hill, Blue Bird Mine, or several other stations on the Eldora branch of the Denver, Boulder & Western Railroad. It may also be reached from Ward. Glacier Lake may be reached by automobile, without much difficulty, from Denver, via Nederland, or by one or two other routes, but there are several hills in this neighborhood that are too steep for automobiles. A few autos go all the way from Glacier Lake to Silver Lake, but the trip, like many of the trips over the steep mountain roads, is hard on tires and requires a good hill-climbing car and a careful driver.

Taking the north fork of the creek, from Silver Lake, we pass Lake Albion and the Green Lakes, from which Navajo Peak (13,406) feet, Arikaree Peak (13,147 feet), and Kiowa Peak (13,101 feet) are all accessible. Mount Albion (12,596 feet) is a promontory south of Kiowa Peak and can be climbed by a short detour from that point.

Taking the west fork of the creek, from Silver Lake, we pass Island Lake, Goose Lake, and Triple Lakes, and from here Mount Albion, Kiowa Peak, and Arikaree Peak are accessible, as well as the principal points of interest at the head of this valley, namely, Arapaho Glacier and Arapaho Peaks. The North Peak (13,506 feet) is the higher of the two Arapaho Peaks, more rugged and more difficult to reach. The South Peak (13,342 feet) is separated from the North Peak by a ridge half a mile or more in length. This ridge is sharp and precipitous on both sides, but is not dangerous if the rocks are dry and free from ice. In the glacial cirque east of the two

Photograph by Clark Blickensderfer.

SOUTH ARAPAHO PEAK AND THE GLACIER.

Photograph by G. H. Harvey, jr.

THE RIDGE BETWEEN NORTH AND SOUTH ARAPAHO PEAKS.

Upper: Arapaho Peaks from Silver Lake.
Photograph by Clark Blickensderfer.

Lower left: Isabelle Glacier, Navajo Peak.
Photograph by G. H. Harvey, jr.

Lower right: On the Arapaho Ridge.
Photograph by Clark Blickensderfer.

peaks lies Arapaho Glacier. It is the largest and most perfect of the glaciers in this region, probably in the entire State. All of these glaciers, however, are but dwarfed remains of the mighty ice streams that once filled the valleys and played such an important part in the present topography of the country.

In a visit to the glacier one should take along an ice axe or something for cutting steps in the ice, and should not venture on the snow-covered portions of the glacier early in the summer; dangerous crevasses may be concealed beneath. The ascent of either the North Peak or the South Peak, direct from the glacier, is difficult and somewhat dangerous, and should not be attempted by anyone not familiar with rock climbing or steep snow slopes.

The South Peak, the ridge, and the North Peak are most easily reached from the Fourth of July Mines. One of the mine buildings is shown on the map. Others, where one may find shelter for the night, are located near the creek, south of the one shown on the map. The South Peak is an easy climb from the Fourth of July Mines, and one may then cross the rather dizzy ridge to the North Peak.

The Fourth of July Mines is reached from Eldora, the terminus of one branch of the Denver, Boulder & Western Railroad. One may walk, ride, or drive from Eldora to the mine.

Arapaho Pass (11,906 feet), or Boulder Pass, as it is sometimes called, is located about 1½ miles beyond the Fourth of July Mines. It leads over the Continental Divide and down the western slope to the Fraser River or to Monarch Lake. A wagon road was started over this pass many years ago, but abandoned.

Mount Neva (12,800 feet), the most southerly peak on the map, may be reached from Arapaho Pass or from the Fourth of July Mines.

NAVAJO PEAK (13,406 FEET).

[Report furnished by Arnold Emch, accompanied by two of his sons and two other young men (Aug. 19 and 20, 1915).]

Next to North Arapaho Peak, this is one of the finest peaks of the whole region. We left Ward at 10 a. m., and followed the mountain road to Left-hand Park (old dilapidated reservoir). We crossed over Bald Mountain ridge and reached the upper Albion mining camp at half-past 1. We spent the afternoon here and passed a tolerably comfortable night, prepared breakfast and started on our climb at 5 a. m. We followed the route to the upper Green Lake, and from here along the eastern slope of the ridge from Arikaree Peak to Navajo Peak. Thus we reached the small lake under the letter K of Navajo Peak on the map. From here we enjoyed the magnificent view of the rugged ridges between Arikaree Peak, Navajo Peak and Arapaho Peak. On the first part of the climb there are no difficulties; the chimney and the final climb may be accomplished by any sure-footed climber.

The last portion of the ascent is the really interesting part of the whole climb. We stayed about 45 minutes on the summit and admired in particular

the imposing view of North Arapaho Peak from this elevation. The northeast face of Navajo Peak is very abrupt and leads down to Lake Isabelle. A descent to this lake over a very steep snow field may be undertaken; it would seem advisable, however, to use ice picks and rope on either an ascent or descent over this route. The long Bald Mountain chain terminates in a ridge.

NAVAJO PEAK (13,406 FEET).

[Report furnished by W. F. Ervin (Sept. 1, 2, and 3, 1917).]

Number in party 12—9 men, 3 women.

The Colorado Mountain Club party left Denver on Saturday, September 1, 1917, with an even dozen members on the Colorado & Southern 8.15 train for Boulder, where we changed cars and went to Hill Station, on the Boulder & Western, where we left the train at 12.10 p. m. After loading our equipment on the wagon, we walked to the top of the first hill on the Silver Lake road and stopped there three-quarters of an hour for lunch and then walked to University Camp, where we again met the wagon. We walked on to Silver Lake and then over to Camp Albion, where we pitched our camp for the night.

We left camp at 6.10 Sunday morning, walked up the tram track to the Lake Albion dam, and then around the south side of the lake to where the trail meets the road and followed this to the camp at Green Lakes. This would be a good place to camp if one were packing, but it is impossible to get a wagon beyond Camp Albion. Here we took the trail which leads up the watercourse and followed it to the end and then kept on up the watercourse past Green Lakes until we came up on the shelf above Upper Green Lake, or the last lake of the Green Lakes chain. We did not go on up to the little lake at the foot of the snow bank, but turned north and climbed to the low point in the ridge running east from Navajo. Up to this point the climb presents very little difficulty. From here we took a diagonal course across the face of Navajo Peak to a point on the ridge about 200 feet south of the summit and then followed the ridge to the top. This last 200 feet of the climb is very interesting, but not dangerous. We arrived at the summit at 11.30 a. m. Distance traveled, 4 miles. The last 900 feet of the climb is over medium-sized loose rocks and is fairly hard climbing.

We left the summit at 12.30 p. m. and nine of us went back the way we had come to the camp at Green Lakes while the other three climbed Arikaree Peak from the north side. From the camp at Green Lakes we took the upper road, which keeps up on the hill north of the creek and the lakes and returned to camp. This part of the walk was very beautiful, as you can look across Lake Albion to Kiowa Peak and Arikaree Peak. We arrived at camp at 5.30 p. m. The weather was fine all through the trip.

Monday we broke camp and started down at 9.15 a. m. Walked to Silver Lake and then around for a mile or so on the Goose Lake road. We then walked down to Arapaho Falls where we cooked lunch, and went on down to Bluebird and took the train to Denver.

While there is some hard climbing on this Navajo trip, the distance is short. It is a very pleasant trip and gives a wonderful view of rugged peaks, close at hand.

Log of trip to Navajo Peak.

Place.	Time reached.	Elevation.	Elevation climbed from last-mentioned place.	Distance from last-mentioned place.
Saturday:	*p. m.*	*Feet.*	*Feet.*	*Miles.*
Hill Station	12.10	9,000		
University Camp	2.20	9,600	600	3
Silver Lake				
Camp Albion	4.00	11,000	1,400	4
Totals			2,000	7
Sunday:	*a. m.*			
Camp	6.30			
Green Lakes	7.30	11,400	400	1
Summit, Navajo Peak	11.30	13,400	2,000	3
	p. m.			
Left summit	12.30			
Camp	5.30			5½
Totals			2,400	9½

ARIKAREE PEAK (13,147 FEET).

[Report furnished by Carl Blaurock, accompanied by F. H. Clark, Morton Hamon, and Charles H. Saunders (Sept. 2, 1917).]

Four of us left the Colorado Mountain Club party after having climbed Navajo Peak, and started about 1 p. m. to follow along the serrated ridge between Arikaree Peak and Navajo Peak, with the intention of climbing up the precipitous northern side of Arikaree Peak.

The going was fairly good over small bowlders until the large snow bank lying in the hollow of the cirque was reached, and here Clark was sorely tempted to leave the party and slide down the snow some 300 feet to an icy bath in the beautiful glacial lake below, but after several long looks decided to stay with the rest of us until a more favorable spot was reached. So we continued, keeping our elevation and paralleling the ridge around until the foot of the large cliff to the west of Arikaree was reached.

Here Clark temporarily left the party and slid down the glacier and worked his way around to the foot of Arikaree on the moraine. The rest of us continued along the edge of the snow bank for a short distance, when Hamon and Saunders decided to cut across the bank at a favorable-looking spot while I continued along the edge until the first large fissure extending up the cliff was reached. This I could not cross, as it was too steep and the ice gave me no foothold. Hamon and Saunders had meanwhile worked their way around to the ice chute extending up to the gash between Arikaree Peak and the cliff beside us. Here the ice got too steep for them to secure a foothold. Saunders then slid down the glacier and joined the main party, on their way to Green Lakes.

I next turned to the cliff and started to climb up. After going up about 50 feet I wanted to go down again, as footholds and handholds began to get scarce and the cliff smoother and steeper (estimated 75° to 85°), but going down was still more difficult, so I kept on ahead, occasionally resting on some small knob, poised in midair, while I noted the great amount of space around me, especially at my feet. At times there would be small patches of snow and ice which made the climbing more precarious, and in one or two places it was necessary

to hang by my hands and swing myself, pendulum fashion, around a smooth piece of rock to a new foothold. Soon the top of the fissure was reached and the going was good up to the notch, into which I descended and could then see Clark on the other side and quite far below me, giving advice to Hamon, who was still sitting at the foot of the cliff.

Then ensued a three-sided powwow as to what to do next, after which Hamon got across the ice chute and joined Clark, and we all continued up Arikaree. The going was not so bad here, though still very steep and with much loose rock, so that footholds and handholds had to be carefully chosen to avoid dislodging these or other rocks. Being quite a bit above the others, I reached the top first, at 3.30 p. m., while they joined me in about 15 minutes. We sat there half an hour or so, enjoying the scenery, then started for camp by way of the saddle between Mount Albion and Kiowa Peak, which is an easy route all the way down, except for a small stretch of rock and a snowbank, down which we slid, just above Lake Albion.

KIOWA PEAK (13,101 FEET).

[Report furnished by Arnold Emch (August, 1913).]

One gets a beautiful view of this mountain from the ridge that leads from Bald Mountain (11,453 feet), in a westward direction up to Navajo Peak. The uppermost Albion Mine, from which the ascent can be made, may be reached from Ward (by crossing over Bald Mountain) or from Silver Lake. We took the early morning train from Eldora to the Blue Bird Mine, walked to Silver Lake, and from here to the upper Albion Mine. We left this place at 11 o'clock and, after a steady climb of three hours, reached the summit, which bears a triangulation station of the Boulder City survey. The mountains and the range were immersed in clouds. At times it was not possible to see farther than 20 feet in any direction. We waited over an hour on the summit, hoping that the clouds would disperse, but conditions, instead of getting better, grew steadily worse.

As it was then after 3 o'clock, we decided to descend on the south side toward the Arapaho Peaks. This side of Kiowa Peak is extremely interesting, much more so than the northern face, and keeps the climber constantly busy and on the alert. When we got down to Frozen Lake, the fog lifted for a moment and we saw the wonderful and romantic location of this beautiful lake. Farther down we had to contend again with rock barriers, and a number of times had to hunt for places where it was possible to get down. It was 6.30 p. m. when we came to a place above the northern shore of Triple Lakes. The clouds began to settle down on the lake and it got dark, so we were forced to camp here. During the greater part of the night the fog around us was so dense that our shadows were projected on it by the light of the camp fire. It was impossible to distinguish anything more than 10 feet away from the fire. The next day we returned by the usual route to Silver Lake and to Eldorn.

ARAPAHO PEAKS—SOUTH PEAK (13,342 FEET) AND NORTH PEAK (13,506 FEET).

[Report furnished by Arnold Emch (various trips, from 1900 to 1914).]

These peaks can easily be climbed in one day from Eldora, especially if the trip to and from the Fourth of July Mines is made by wagon. On the map only the upper mine and the dilapidated trail leading to it are shown. The lower mine, nearer the creek, where night quarters may sometimes be

obtained, is not shown on the map. From here a trail leads to the upper mine.

South Arapaho Peak is located on the map just north of the letter A in the word Pass. It may be reached without difficulty from the Fourth of July Mines in three or four hours. There is a trail most of the way. The main portion of the ascent begins at the saddle, from which a magnificent view of the glacier below presents itself. The North Peak, shown as Arapaho Peak on the map, may be reached from the South Peak, over a very rugged rock ridge. This, however, takes more time and requires sure footing and a steady head. South Peak may also be climbed in the same easy manner over the ridge, coming from Caribou, which joins the other route at the saddle.

On the six excursions which I have made on this mountain, the descent was made twice upon the glacier. The last of these traverses, August, 1912, was the most interesting. In spite of the advanced season, great masses of snow still remained on the mountain. My oldest son, Walter, was with me and we were tied together by a rope. To get down at all, I had to cut steps for at least two hours in the very steep surface of hard snow leading down to the glacier. We finally struck the south wall of North Arapaho Peak. By sliding down the rest of the inclined snow plane, the glacier was reached in a few minutes. The crevasses in the upper part of the glacier were mostly packed with great masses of snow and, consequently, did not cause us any trouble, as they had done on a previous trip. Below the glacier extended several snow banks and below these were lakes in terrace formation. From the highest of the Triple Lakes, we followed the tedious route down the valley. A little below Silver Lake in a boarding house conducted by a Mrs. Parker, we found welcome quarters for the night. The next day, on our way down to the blue Bird Mine (a station on the Denver, Boulder & Western Railroad), we had an opportunity to admire the beautiful upper Boulder Falls. Shortly after noon the train brought us back to Eldora. My brother-in-law and I made a somewhat easier descent upon the glacier in 1911.

On September 3, 1900, my brother and I made a complete ascent and traverse of the more difficult North Arapaho Peak. I do not know of any previous ascent of this North Peak and was told that it had not been climbed before. We started at 4.30 a. m. from a bivouac in the rocks southwest of and above the upper of the Triple Lakes. The night was cold; we were without a tent or sleeping bags.

After climbing for some time over a chaos of huge bowlders, cliffs, and rocky barriers, so characteristic of all high valleys in this section, we came to the glacier. Its lower portion was absolutely harmless, while the upper strata, leaning on the south wall of North Arapaho Peak, were very steep in places. The bergschrund, a crevasse in the ice, which is always found in the highest portions of a glacier, was very irregular and in places from 30 to 50 feet deep and 5 feet wide. It required very careful work to find a suitable bridge across the chasm. From here the rest of the climb was an exhilarating scramble with hands and feet up the rugged southern wall. It was a little after 11 o'clock when we reached the summit of North Arapaho Peak, one of the most magnificent peaks of the Colorado Rockies. Surely there could stand no finer monument in memory of the valiant and noble Arapaho Indians than this imposing and dominant peak, which, like a guardian, watched for centuries the wild folk dwelling in his domain.

An hour of supreme enjoyment passed like an instant, surrounded as we were by the greatest and purest display of nature. As there was hard work ahead of us, we departed promptly at half past 12. Not expecting particular difficulties, we chose for our descent the rugged northeast ridge. The first part

was steep and in some places precipitous, but the difficulties continued to increase. In one place a perpendicular precipice blocked our route, so that we had to retrace our steps and then go down a narrow, ice-filled gully. From here we were able to reach the notch below the precipice. The view from here toward the opposite east ridge was first rather discouraging, but close inspection showed that with sufficient care the descent could be accomplished from this lofty eyrie. To get to this notch, still high up, we had lost over two hours of valuable time. Thirty feet below, the almost perpendicular rocks, surrounding the gap in the crest, terminated in a steep snow field of very hard icy structure. Three hundred feet below, this field fell directly into a lake whose extremely dark blue water suggested gruesome and frigid depth. It took two hours more to perform the difficult and dangerous task of crossing this treacherous incline.

With this passage accomplished, all difficulties were over, and the traverse was a success. Climbing along the rugged eastern slope and down over a number of steep rock barriers, we finally reached the upper of the Triple Lakes, above which we bivouacked the night before. From here it was impossible to follow the irregular and clifflike shores of the string of lakes that extends to the east.

At the time of our first exploration in this region there was no trace of a trail like the one now in existence. The lakes had to be avoided by tediously climbing around over very rough ground, crossing alternately heavy, dead timber, bowlders, and shallow basins or moors filled with swamp grass. Above Goose Lake the falling night compelled us to camp in the open. Our provisions had run out, and in the morning, when we had to continue our journey, we were in a weakened condition. We managed to reach the cabin at Silver Lake at 5 o'clock in the morning. The forest guard prepared a breakfast for us which tasted better than any we could remember. After a cheerful tramp of about 7 miles down to the station of Sunset, a train took us back to Boulder.

The trail from Triple Lakes to Silver Lake lies north of the lakes. This is important, as two attempts to pass on the south side resulted in failure.

On long, hard trips the traveler should be well provisioned; in fact, he should have some reserves for cases of emergency. Prolonged lack of food in the higher regions may become positively dangerous, and continuous expenditure of energy without food is impossible.

An account of this ascent of North Arapaho was published in the Rocky Mountain News of September 16, 1900.

MOUNT NEVA (12,800 FEET).

[Report furnished by Arnold Emch, accompanied by son, Walter Emch (August, 1913)].

The road to the lower Fourth of July Mine, where one can stay over night, and the mine itself, are not shown on the map. They are near the creek, directly south of the mine building indicated on the map. This magnificent pyramid, Mount Neva, the sentinel of Middle Park, is on the Continental Divide just south of Arapaho Pass.

We left the Fourth of July Mines at 5 in the morning, and followed more or less the rugged ground along the creek that crosses the word Neva on the map. Dense undergrowth and high moors above timberline had to be overcome by scouting through the wearisome labyrinth. At the end of the creek we circled around the southern shore of the frozen lakes, which are not completely shown on the map, and from here gained the south ridge of Mount Neva by climbing more or less in a northwesterly direction. After this ridge was reached the

top was not far off and we arrived at 9 a. m. The frozen lakes which we passed were still covered with thousands of tons of floating ice in immense blocks. Mount Neva may also be scaled from the point (12,557 feet) west of Lake Dorothy (12,050 feet). Arapaho or Boulder Pass (B. M. 11,906) lies a short distance northeast of the mountain. From this north side a steep snow field must first be traversed before the crest leading up to the summit can be reached.

On our way down from Mount Neva, the first part of the route was identical with the line of ascent, and we then went south to the valley of the Jasper Lakes (Central City quadrangle map). We reached the Continental Divide between South and Middle Jasper Peaks and from here descended directly to the uppermost Jasper Lake, which was entirely covered with ice. The scramble from here down to the lower Jasper Lakes is very interesting and leads through landscapes of romantic ruggedness. Returned over the usual trail, down from Jasper Lakes, in the rain, and reached Eldora at 7 o'clock in the evening.

PEAKS ACCESSIBLE FROM THE WEST SLOPE.

The Denver & Salt Lake Railroad starts from Denver, crosses the Continental Divide at Corona, descends to Granby (8,000 feet elevation), and continues westerly. From Granby one may take a stage to Grand Lake (elevation 8,369 feet), which is a popular summer resort, with hotels, a number of attractive cottages, boating, yacht club, and other facilities that make it a good starting point for many splendid horseback or climbing trips. Grand Lake may be reached in a day (8 or 10 hours) from Denver by auto, over roads that are in constant use and are better than most mountain roads. The route from Denver is through Golden, over the Denver Mountain Parks boulevard system to Idaho Springs, thence over Berthoud Pass to Coulter, Granby, and Grand Lake. Berthoud Pass is a long, steep pull, but thousands of autos go over it every summer.

From Grand Lake a road leads up the North Fork of the Grand River to Squeaky Bob's (Bob Wheeler's camp) at the foot of Milner Pass, and not far from B. M. 9038 on the map. From here one may ride horseback or walk to Lulu Pass (11,300 feet), La Poudre Pass (10,192 feet), or Milner Pass (10,759 feet), all on the Continental Divide. Lulu Pass is a mile or two east of Mount Richthofen. The name Lulu Pass has sometimes been applied to La Poudre Pass, which is not surprising, as the town of Lulu, now completely abandoned, was located near the junction of the two trails.

The peaks in the north part of the Front Range that may be climbed from Squeaky Bob's or from any point near the head of the North Fork, are Specimen Mountain (12,482 feet), previously referred to; Shipler Mountain (11,400 feet); Mount Neota (11,700 feet), and most of the peaks of the Medicine Bow Range.

West of the North Fork the Continental Divide takes a turn to the south, and one must take a good look at the map and readjust

his idea of the usual order of things in order to grasp the situation. Here we have the Pacific slope on the east side of the Divide, and the Atlantic slope on the west side. Here, too, we have a valley with the Continental Divide on both sides.

The United States Geological Survey map refers to this range as the Medicine Bow Mountains, and this name is followed in this book, although the main part of the Medicine Bow Range lies still farther north. The usual name for these mountains is Rabbit Ear Range, and the poetic Indian name should not be forgotten; to the Indian it was the Never-Summer Range.

The highest peak of this range is Mount Richthofen (12,953 feet), and the others, from north to south, are Nokhu Crags (12,400 feet), Seven Utes Mountain (11,438 feet), Lead Mountain (12,532 feet), Mount Cirrus (12.804 feet), Howard Mountain (12,814 feet), Mount Cumulus (12,724 feet), Red Mountain, (11,505 feet), Mount Nimbus (12,730 feet), Baker Mountain (12,406 feet), Parika Peak (12,400 feet), Bowen Mountain (12,541 feet), Cascade Mountain (12,320 feet), and the more distant group on the Atlantic slope, Bearpaws Peaks (11,735 feet).

Farther south, beyond the turn of the Continental Divide, but on an extension or spur of the range, are Blue Ridge (11,680 feet), Porphyry Peaks (11,355), and Mount Bennay (11,781 feet).

Most of these peaks of the Medicine Bow Range can be reached from any convenient starting point in the upper end of the North Fork Valley. Squeaky Bob's is about the only place where accommodations are available.

The peaks at the southern end of the range, near where the Continental Divide turns west, may be reached from points in the North Fork Valley or from Grand Lake.

MOUNT RICHTHOFEN (12,953 FEET).

[Report furnished by Roger W. Toll, accompanied by Shep Husted (Aug. 30, 1914).]

We went on horse back from "Squeaky Bob's" summer camp at the foot of Milner Pass, up the valley of the North Fork of the Grand River, to the ditch camp at an elevation of about 10,200 feet. The Continental Divide takes a loop to the north in this region and parallels the North Fork on both the east and the west sides. We climbed from the ditch camp to the top of Mount Richthofen in two or two and one-half hours. A snowstorm cut the view short and we returned to Bob's for the night.

HOWARD MOUNTAIN (12,814 FEET).

[Report furnished by Gustave A. Gambs (Aug. 5, 1917).]

I left Squeaky Bob's alone at 8.30 a. m., going north. Within half a mile a small trail to the right avoids a double crossing of the fork and after about

Photograph by Geo. C. Barnard.

MOUNT RICHTHOFEN ON LEFT, LULU PASS AND LULU PEAK ON RIGHT, FROM SPECIMEN MOUNTAIN.

Photograph by G. H. Harvey, jr.

NEARLY UP MOUNT RICHTHOFEN.

Peaks of the Medicine Bow Range, the poetic Indian name of which is Never Summer Range.

Photograph by G. H. Harvey, jr.

MOUNT BAKER FROM GRAND RIVER, 8 MILES NORTH OF GRAND LAKE.

Photograph by Wiswall Brothers.

GRAND LAKE AT THE WESTERN GATEWAY.

1½ miles an abandoned camp is met at the entrance to the tall timber; from here a trail leads west, climbling to the irrigation ditch which takes its supply from the south flank of Howard Mountain and runs north at an altitude of 10,200 feet along the ridge for a distance of about 12 miles to the La Poudre Pass. At 10.15 a. m. I crossed this ditch near its beginning where it winds around the southeast spur of Howard Mountain and from here I followed the crest line in a northwesterly direction. At 11 a. m. I came to a small gap at timberline and 11.15 a. m. to the end of the underbrush at an altitude of 11,200 feet. From here I saw at my feet the white tents of Bob's place, and beyond the mighty tower of Longs Peak. I left this spot at noon and followed the sharp crest line in a westerly direction. On my way I flanked five towers, some to the south, others to the north; three of these towers look like real giants. The rocks were brittle at times, and being alone I had to proceed rather carefully. Sheep trails abound in all directions. At my feet to the north I perceived the blue transparent lake of the cirque of Mount Cirrus and to the south a smaller lake under the eastern spur of Howard Mountain, that feeds the irrigation ditch. The snow fields in both basins and those hanging along the main ridge are very numerous.

At 3 p. m., after three hours of hard crest work, I reached finally Howard Mountain. The view is superb. No register, no cairn, no sign of tourists was found on top except that the rocks were grouped so as to form a round cavity, 1 foot deep and of 3 feet diameter. In its center I built a small cairn 2 feet high. I followed the divide line south into the first little gap, slid down the east slope over a steep snow field, then over gravel and over more snow fields, and within one hour I was at the lake, at an altitude of 11,200 feet. I followed its outflow until I came to the beginning of the irrigation ditch after an hour of traveling, and after another hour I entered Bob's kitchen.

Summary of time consumed.

	H.	M.
Bob's (9,050 feet) to irrigation ditch (10,200 feet)	1	45
Irrigation ditch to end of underbrush (11,200 feet)	1	00
End of underbrush to summit of Howard Mountain (12,814 feet)	3	00
Howard Mountain to unnamed lake south of Howard (11,200 feet)	1	00
Unnamed lake to beginning irrigation ditch (10,200 feet)	1	00
Beginning irrigation ditch to Bob's (9,050 feet)	1	00
Total	8	45
Rest	0	45
From 8.30 a. m. to 6 p. m	9	30

PEAKS ACCESSIBLE FROM GRAND LAKE.

Besides the Fall River trail, there are two other trails from Grand Lake to Estes Park, though they come together at Flattop Mountain and both use the Flattop trail on eastern side of the Divide.

One of these trails starts north from Grand Lake and follows up Tonahutu Creek, almost to the Divide, and then skirts along on the western slope side of the crest of the Divide, until Flattop Mountain is reached. Twenty years ago this was the shortest trail between Estes Park and Grand Lake and was the one most often used. Since

the completion of the North Inlet trail most of the travel has gone over the newer and shorter trail. The Tonahutu Creek trail gives access to Mount Ida (12,700 feet), Nakai Peak (12,221 feet), Flattop Mountain (12,300 feet), Snowdrift Peak (12,280 feet), and Mount Patterson (11,400 feet).

The North Inlet trail enables one to reach Flattop Mountain, Hallett Peak (12,725 feet), Otis Peak (12,478 feet), Taylor Peak (13,150 feet), McHenrys Peak (13,300 feet), Snowdrift Peak, and Mount Patterson. The Government shelter cabin, located just below timberline on this trail, gives a very useful starting point for several of these peaks.

During the year 1917 the national park authorities cleared a trail from the North Inlet trail, continuing on up the valley of the inlet and reaching Lake Nanita (10,700 feet). This trail opens up to the public a wild, beautiful, and rugged region, previously visited by but few persons. Andrews Peak (12,564 feet) towers above Lake Nanita, though its ascent from this north side may be difficult. This new trail also gives closer access to Chiefs Head (13,579 feet) and Mount Alice (13,310 feet).

If the East Inlet of Grand Lake is followed up to Lake Verna (10,100 feet) and the other lakes at the head of the valley, it leads within reaching distance of Mount Alice, Tanima Peak (12,417 feet), Mahana Peak (12,629 feet), the south slope of Andrews Peak, and Mount Craig (12,005 feet).

A fork south from the East Inlet leads toward Ouzel Peak (12,600 feet), Ogalalla (13,147 feet), Hiamovi Mountain (12,388 feet), Watanga Mountain (12,381 feet), Mount Adams (12,115 feet), and Mount Craig. Mount Bryant (11,000 feet) is easily reached direct from Grand Lake.

PEAKS ACCESSIBLE FROM MONARCH LAKE.

Monarch Lake (elevation 8,340 feet) is reached from Granby by road. A railroad was built from Granby to the lake for lumber purposes, but was discontinued. For a while auto stages were run on the track, but one can ascertain by inquiry the best method of reaching the lake. A fishing resort is located at the lake and one can obtain hotel accommodation there. The trail from Monarch Lake over Buchanan Pass (11,700 feet) and down to Stapp's Hotel on the Middle St. Vrain gives convenient access to Sawtooth Mountain (12,304 feet), to the steep western side of Paiute Peak (13,082 feet) and Thunderbolt Peak (11,943).

Cascade Creek, branching southeast from this trail, passes Thunderbolt Peak and leads to the western slope of Paiute Peak, Pawnee Peak (12,900 feet), Apache Peak (12,807 feet), which towers above Crater Lake (10,400 feet) and Mount Achonee (12,656 feet). Hell

Photograph by John King Sherman.

LAKE NANITA GORGE, ANDREWS PEAK IN LEFT BACKGROUND.

Photograph by G. H. Harvey, jr.

ARAPAHO AND NAVAJO RANGE FROM MOUNT CRAIG.

Canyon leads to Mount Irving Hale (11,747 feet), Hiamovi Mountain, and toward Ogalalla Peak.

A trail runs up Arapaho Creek to Arapaho Pass (11,906 feet) and gives access to Mount Neva (12,800 feet), Arapaho Peaks (13,506 feet), and Satanta Peak (11,885 feet). A stream to the east of Arapaho Creek leads into Hellhole, an abyss encircled by the steep and threatening walls of Apache Peak (12,807 feet), Navajo Peak (13,406 feet), Arikaree Peak (13,147 feet), and North Arapaho Peak; Mount Achonee is passed on the way up Arapaho Creek.

CIRCUIT TRIPS IN THE ROCKY MOUNTAIN NATIONAL PARK.

Many splendid trips can be taken, starting on one side of the national park, crossing the Continental Divide by one route and returning by another route. Such trips are usually taken on horse back, but the ascent of several peaks may be included as a part of these trips, if desired. The entire trip may be taken on foot, if preferred.

The following reports are suggestive of such extended trips and will be of help in planning similar excursions:

ESTES PARK TO GRAND LAKE, VIA FALL RIVER TRAIL AND RETURN VIA FLATTOP MOUNTAIN.

[Report furnished by Dr. Max Giesecke, Aug. 16, 17, and 18, 1912.]

Number in party, 5 men.

Our party left Estes Park on horse back at 8 a. m., and arrived at the shelter cabin on Fall River at noon, where we rested, fed our horses, and had lunch. We continued our trip at about 1.30 p. m., following the trail, which was very good, by Poudre Lakes and over Milner Pass to the North Fork of the Grand River and then to Squeaky Bob's (Camp Wheeler), one-quarter of a mile upstream, where we arrived about 4 p. m. Here we were very comfortably housed for the night and served with a well-cooked supper and breakfast by the proprietor, who is an entertaining host and an excellent cook. In the morning we left for Grand Lake, about 16 miles downstream, following the road.

The lake is one of the most beautiful spots in Colorado. It is of glacier formation, 7 miles around, and the bottom had not yet been sounded. It is entirely surrounded by trees and many summer homes have been built near by. We spent the rest of the day enjoying a motor boat and taking pictures. Grand Lake is a veritable mecca for kodaks. On the third day, August 18, at 8 a. m., we started on our return, taking the trail up the North Inlet, which we found very boggy at first. Later we came to a more defined trail, which was easily followed to timberline, where we nooned. From there the trail was very steep with many loose rocks, so we dismounted and led our horses to the top. From Flattop Mountain we could look into Bartholf Park, see Bierstadt Lake, the Moraine, Bear Lake, Longs Peak, and on the other side of Flattop we could see Lake Helene and Lake Odessa in its setting of pines.

In descending on the Estes Park side, the trail was pretty well covered with snow, which gave us more or less trouble until timberline was reached; from there on the trail was in good condition and easily followed.

We arrived in Estes Park about 7 p. m.

GRAND LAKE, LULU PASS, SHIPLER MOUNTAIN, SPECIMEN MOUNTAIN, AND FALL RIVER TRAIL.

[Report furnished by Miss Alice White (Mrs. Walter H. Price) August, 1914, Colorado Club Outing.]

Words fail me in describing the exquisite beauty of Grand Lake—two miles long by a mile wide—and in places so deep that I don't believe they have fathomed it. It is set like a gem in the hollow of the mountains. Beautiful evergreens shelter its shores, and almost conceal the log cottages, and the wonderful snow-capped mountains completely encircle it. The North and East Inlets empty into it with a rush and noise seldom attained by eastern rivers of like size, impelled by cataracts or beautiful little waterfalls which have been formed by the waters cutting their way through the mountains. You can just imagine how lovely it was to motor around this beautiful little lake in the clear Colorado sunshine.

Tuesday, Wednesday, and Thursday were spent at Grand Lake, boating, fishing, and taking short walking trips.

Friday morning dawned bright and clear, and the walk of 16 to 18 miles to our Shipler Park camp, which was nearly 1,000 feet higher than Grand Lake, was one of the finest trips of the whole outing. A road led from Grand Lake to Shipler Park, and we followed it all the way, through seas of flowers of every hue imaginable. The fringed blue gentians grew so thick that one swoop of the hand would have secured a large bunch, and they formed pools of blue, first on one side and then on the other side of the road. At noon we came to one of those swift-running glorious little mountain brooks, took off our shoes and stockings and bathed our feet in the icy waters. After lunch we were quite ready to continue our jaunt, and by 3.30 p. m. we arrived at Squeaky Bob's camp, which he calls the "Hotel de Hard Scrabble." It is a pleasant looking log-cabin resort surrounded by tents and much frequented by trout-fishing enthusiasts, as the trout fishing in Grand River is very good. Squeaky Bob is quite a character, and claims to have been everything from a cow puncher, horse thief, and guide to a hotel proprietor. He got his name for his voice, which is high pitched and has a falsetto note in it. Some of the folks stopped here and had supper for the fun of it, and the rest of us pushed on to camp. It was really the most beautiful camp of the trip. This park was adorned by the finest grove of Englemann spruce and fir balsam trees and bounded on the one side by the Grand River and the other by a swift-running mountain brook. The only person up there was an old miner, Mr. Shipler, who had several mining claims in that region, and from whom the park as well as a mountain looking down upon it got its name.

Sunday was another glorious day and we were up and away before 7 o'clock, the objective point being Lulu Mountain and Lulu Pass. Crossing Grand River, we ascended a winding trail, blue with ripe blueberries, until we had climbed about 1,000 feet, then we reached an irrigating ditch, which to me was extremely interesting, as through it the waters on the western slope of the Rocky Mountains were turned back to the eastern slope through one of the low passes in the Continental Divide. Tall forests of Englemann spruce grew on either side of the ditch, and, as usual, masses of brilliant flowers, and the water was as clear as crystal and cold as ice.

Just where the snows were, we found two lovely little mountain lakes, and from there on it was only a short distance to the summit of the Pass, where we looked away over the eastern slope and back again to the western slope, with everywhere that the eye could reach, gorgeous snow-crowned mountains. Lulu Mountain was 500 feet higher, so we did not linger long at the Pass, as we

were anxious to reach the summit of the mountain. Until you attempt to climb loose rock and struggle with shortness of breath and thin air, you can scarcely appreciate what it meant to reach the top of Lulu Mountain, which looked so near, and yet proved to be a goodly distance. It was a pretty big task for us beginners, and it was only by selecting some point a short distance ahead and setting my teeth firm in the determination not to stop till I had reached that point, that I was able finally to reach the top. The view was glorious and we rested quite a while, with sweaters buttoned clear to the necks, for though it was noon and the sun blazing away, it was cold up there with the winds piercing through you. We did not stop for lunch, preferring to descend to the pretty little lakes. From there it was a continual descent till we reached camp about 4 p. m., and retired to our tents to wash and dress, as word had been passed around we were to have a chicken dinner, and we determined to dress for the occasion.

I decided to forego the trip to Mount Richthofen on Monday, so stayed in camp.

Tuesday morning we got up in a heavy mist, packed our bags and left them trustingly standing outside our respective tents. It was quite a sight to see the men catch the horses and saddle them with the peculiar packsaddle that is used when baggage must be carried. The saddle has four wooden prongs, and the bags are tied to these, four bags, I think being carried by each horse. By 7 o'clock, as the mists were rolling away and the sun beginning to shine down in the valley, we started off straight up Shipler Mountain over the fallen timber without even a trail to guide us. The way was direct, as we only had to gain the summit and then walk along the backbone of the ridge till we came to an extinct crater on the slope of Specimen Mountain. From here we could look down upon the two beautiful Poudre Lakes and Milner Pass. Some mountain sheep went into hiding on the approach of the first members of our party, and all we saw were their tracks. We climbed into the alleged crater and explored the interesting rocky caves; while here we were caught in a fierce thunder, lightning, and hail storm. The wind blew so hard we had to crawl up into the rocks and wait till the storm blew over, then we proceeded down a lovely trail to the Poudre Lakes, where we lunched and waited, hoping that the pack train would come into sight, before climbing 1,000 feet higher, above timberline, where we were to camp for the night without tents.

When we reached camp, however, word arrived that the pack train would not get across the Divide that night. After a hasty consultation it was announced that all who thought they could make it would be led by Mr. Collier, who knew the trail, over the ridge and down to our fourth and last permanent camp, on Fall River, where the balance of our food supply had been sent in through Estes Park, so that while we would not have shelter we would at least have food. That appealed to me, and with some 50 others we formed in line, and each grasping the knapsack of the person in front, proceeded slowly in the fast gathering darkness over the rough trail, marked only in spots by small white stones, up to the summit of the ridge and down about 3 miles on the other side. How we ever did it, in the utter darkness, without even a friendly moon, I shall never be able to explain, for we walked slowly from about 7 in the evening until 10.30 p. m., and when I walked that trail in the daylight and saw the huge stones and roots of trees, to say nothing of the marshes and mountain brooks we had crossed, the wonder grew.

However, we did finally reach the shelter cabin, and when great fires had been built, soup was produced, heated, and consumed with great dispatch. Then, when as many women as possible had been stowed away in the shelter cabin

to keep out of the rain which had begun to fall again, the balance of us disposed ourselves as well as we could around the two fires and endeavored to get a little sleep. If any of the party got more than half an hour's sleep, all told, that night, I would like to meet them.

At 4.30 in the morning, having reposed on the root of a tree, I was glad to get up and stir around, and even bathe in the ice-cold brook. Breakfast was most welcome. It was almost 3 in the afternoon when the first pack train hove into sight and we learned the cause for their nonappearance the day before. The storm which struck us in the "crater" of Specimen Mountain had appeared at Shipler Park about 10 in the morning and was so intense there that the hailstones were large as marbles. The hail and lightning caused the pack horses to stampede and run away down to Squeaky Bob's camp, scattering the dunnage bags to right and left. This meant that the horses had all to be caught and the bags picked up and repacked, so that it was late in the afternoon when they started on their journey. The rain had made the trail, bad in the first place, almost unsafe for travel, so they were compelled to halt for the night and leave us to our fate. We rested all that day as well as we could, and at night, our tents not having arrived, spread our sleeping bags out on the hillsides, pulled boughs of fir balsam to put under them, and went to sleep under the most glorious canopy of stars.

That day there were two trips, one to explore three mountains of the Mummy Range, which rose one higher than the other, and the second trip to Iceberg Lake, which lies above timberline, frozen the year around, guarded by cliffs 700 feet high which rise sheer from the lake.

Saturday morning we left Horseshoe Inn at 6.30 a. m., stowed in great automobile stages, and started off for a 35-mile auto ride through Estes Park to the station at Longmont, where we took the Colorado & Southern train back to Denver.

ESTES PARK TO GRAND LAKE VIA FALL RIVER TRAIL, AND RETURN VIA THE FLATTOP TRAIL, INCLUDING THE CLIMBING OF SEVERAL PEAKS.

[Report furnished by Erich S. Stern, accompanied by Clifford S. Higby and Arthur J. Van Dyke (Aug. 23 to Sept. 1, 1917).]

August 23, left Elkhorn Lodge at 7.30 a. m., going by auto to the present terminus of the Fall River road (elevation, 10,500 feet), 16 miles from Estes Park. Proceeded on foot, following the trail to its highest point (elevation 11,797 feet). There we left the trail, going to the left up the peak (elevation 12,221 feet) at the beginning of Trail Ridge. Rejoined the trail, going down to Poudre Lakes, over Milner Pass (elevation 10,759 feet), and reached Squeaky Bob's (elevation 9,050 feet) at 6 p. m.

August 24, started at 9 a. m. and followed up the creek that comes down from the so-called crater of Specimen Mountain. Spent a long time watching 50 to 70 mountain sheep which are attracted by the alkali salts. Climbed the sharp ridge north of the "crater" and continued around to the opposite side of the "crater," then descended the steep slope, almost opposite Squeaky Bob's camp, reaching there at 6 p. m.

August 25, left camp at 9 a. m. and walked down the valley to Grand Lake, 13 miles, arriving there at 1.30 p. m. Dinner at Ische's Hotel. Rowed across the lake and walked up the East Inlet half a mile to Adams Falls.

August 26, left Grand Lake at 7.15 a. m. and went up the North Inlet on the Flattop trail. Left the trail between Otis and Taylor Peaks and slid down

Andrews Glacier and went to the Loch. We left the Loch at 5.30 p. m. and went down the Glacier Gorge trail and up the Bear Lake trail to Mrs. A. E. Brown's lodge at Bear Lake, reaching there at 6.30 p. m. Length of walk, 17 miles.

August 27, stayed in camp all day, as the weather was unfavorable.

August 28, left camp at 8 a. m., going around to the right of Bear Lake and up a sharp incline until we reached the Flattop trail. Followed the trail to the summit of Flattop Mountain. Climbed Hallett Peak, reaching the top at 1 p. m. Left at 2 p. m. and proceeded northward, along the eastern edge of Flattop Mountain, until we came opposite Tourmaline Gorge, into which we descended. Beautiful colored rock walls on our left. Went down to little Tourmaline Lake; along Fern Creek to Odessa Lake, then to Fern Lake, reaching Fern Lodge at 6 p. m.

August 29, across country to Longs Peak Inn, 15 miles of up and down trail. Left Fern Lake at 9 a. m., down to Forest Inn at Funstons Pool, 1,200 feet below Fern Lake; then along the trail above Cub Lake; about 800 feet up to Mill Creek ranger station, on the Flattop trail. Followed the trail a short distance, then turned to left and climbed about 500 feet to Bierstadt Lake. Approached the valley of Glacier Gorge; lunched; descended into the valley, crossed road in the valley between Sprague's and the Bear Lake trail; ascended Storm Pass (elevation 10,300 feet), 4 miles from the valley; descended to Longs Peak Inn (3 miles from Pass), reaching there at 5.30 p. m.

August 30, left Long's Peak Inn at 11.30 a. m. and walked to Timberline Cabin, reaching there at 1.30 p. m. After lunch walked to Columbine and Chasm Lakes, returning to Timberline Cabin at 5.45 p. m. for the night.

August 31, left Timberline Cabin at 6.15; Boulder Field at 8 a. m.; Keyhole at 8.45 a. m.; top of Trough at 10.15 a. m.; top of Longs Peak 11.40 a. m.; left summit at 12.15 p. m. and, instead of returning through the Keyhole, continued down the Trough, reaching the foot at 2 p. m.; came to Black Lake; Lake Mills; reached trail from Loch Vale and followed down it to the Bear Lake trail; reached Bear Lake Lodge at 7 p. m.

September 1, left camp at 9 a. m.; went around south shore of lake, passed the little Grant Lake; reached Dream Lake; Ursula Lake; continued up the chasm until well in sight of the glacier and then climbed to the base of the last flight of rock wall of Flattop Mountain. Climbed up a difficult chimney and reached the top at 3 p. m. Reached the Flattop trail at 3.30 p. m. and followed it back to Estes Park village, 12 miles, reaching there at 7.30 p. m.

PART 3.

GENERAL DATA.

THE HIGH PEAKS OF COLORADO.

[A list gathered from the latest available authorities, of the named mountain summits in this State exceeding 14,000 feet in altitude. Compiled for the Colorado Mountain Club by Ellsworth Bethel and James Grafton Rogers.]

Colorado is the mountain State of the Union. Of the 55 named peaks of the United States (exclusive of Alaska) which exceed 14,000 feet in height, Colorado has 42, California 12, and Washington 1. There are, probably, at least 5 more peaks of this altitude in Colorado which remain unnamed. It is estimated that one-seventh of the State stands above 10,000 feet in altitude, that it contains at least 350 peaks above 11,000 feet, 220 above 12,000 feet, 150 above 13,000 feet, and 47 above 14,000.

The highest peak in the United States proper is Mount Whitney, Cal. (altitude, 14,501 feet). According to the records of the United States Coast and Geodetic Survey, Mount Elbert, Colo., ranks second (altitude, 14,419.6 feet); Mount Rainier, Wash., ranks third (altitude, 14,408 feet), and Mount Massive, Colo., ranks fourth (altitude, 14,404 feet). According to the records of the United States Geological Survey, Mount Rainier ranks second and Mount Elbert and Mount Massive rank third and fourth, respectively, both having the same altitude, 14,402 feet. Blanca Peak, Colo. (altitude, 14,390 feet), ranks fifth in the United States.

In the following table the first column gives the name of the mountain, the second column the altitude of the peak above sea level, the third column the survey or other authority from which the figure is derived, the fourth column the mountain range to which the peak belongs, and the fifth the county in which it lies. In the third column the letters U. S. C. & G. S. signify that the figure is fixed by the records of the United States Coast and Geodetic Survey. U. S. G. S. indicates the records of the United States Geological Survey; Colo. G. S., that it is taken from the Colorado Geological Survey; Hayden, that it is derived from the Hayden survey of Colorado; Wheeler, from the Wheeler survey; and C. A. C., from work done by Prof. L. G. Carpenter and students of the Colorado Agri-

cultural College. Pikes Peak and Longs Peak were determined by checked spirit leveling and are probably correct within 1 foot. Those credited to the United States Geological Survey were determined by vertical angulation and are probably correct within 10 feet, while those credited to Hayden and Wheeler were determined many years ago by mercurial barometer and may be in error as much as 100 feet.

Recent determinations have reduced the elevations of Mount of the Holy Cross and Buckskin Mountain so they no longer belong in this list. The name Crestone supplants Three Tetons, and Mount Wilson has been adopted in place of Glacier Mountain.

Mount Evans, Longs Peak, and Pikes Peak are visible from Denver, and Grays Peak and Torreys Peak can also be seen from some parts of the city. Pikes Peak is visible from Pueblo and Colorado Springs.

Mountain peaks in Colorado exceeding 14,000 feet in altitude.

Mountain.	Altitude.	Authority.	Range.	County.
	Feet.			
1. Mount Elbert	14,419	U. S. C. & G. S.	Sawatch	Lake.
	14,402	U. S. G. S.		
2. Mount Massive	14,404	U. S. C. & G. S.	do	Do.
	14,402	U. S. G. S.		
3. Blanca Peak	14,390	do	Sangre de Cristo	Huerfano, Costilla, Alamosa.
4. Mount Harvard	14,375	Hayden	Sawatch	Chaffee.
5. Grays Peak	14,341	do	Front	Summit, Clear Creek.
6. Torreys Peak	14,336	do	do	Do.
7. La Plata Mountain	14,332	U. S. G. S.	Sawatch	Chaffee.
8. Uncompahgre Peak	14,306	do	San Juan	Hinsdale.
9. Mount Lincoln	14,276	Colo. G. S.	Mosquito	Park.
10. Mount Evans	14,260	U. S. G. S.	Front	Clear Creek.
11. Castle Peak	14,259	do	Elk Mountains	Pitkin, Gunnison.
12. Quandary Peak	14,256	do	Park	Summit.
13. Longs Peak	14,255	C. A. C.	Front	Boulder.
14. Mount Wilson	14,250	U. S. G. S.	San Miguel	Dolores.
15. Mount Antero	14,245	Hayden	Sawatch	Chaffee.
16. Mount Shavano	14,239	do	do	Do.
17. Crestone Peak	14,233	do	Sangre de Cristo	Saguache, Custer.
18. Mount Cameron	14,233	Colo. G. S.	Mosquito	Park.
19. Mount Princeton	14,196	Hayden	Sawatch	Chaffee.
20. Mount Yale	14,187	do	do	Do.
21. Old Baldy Peak	14,176	do	Sangre de Cristo	Costilla.
22. Mount Bross	14,163	Colo. G. S.	Mosquito	Park.
23. San Luis Peak	14,149	U. S. G. S.	La Garita	Saguache.
24. Mount Sneffles	14,143	do	San Juan	Ouray.
25. Maroon Peak	14,126	do	Elk Mountains	Pitkin.
26. Pikes Peak	14,110	do	Front	El Paso.
27. Kit Carson Peak	14,100	Hayden	Sangre de Cristo	Saguache, Custer.
28. Mount Windom	14,084	U. S. G. S.	Needle Mountains	La Plata.
29. Mount Eolus	14,079	do	do	Do.
30. Culebra Peak	14,069	Hayden	Culebra	Las Animas, Costilla, La Plata.
31. Sunlight Mountains	14,053	U. S. G. S.	Needle Mountains	La Plata.
32. Red Cloud	14,050	do	San Juan	Hinsdale.
33. Mount Bierstadt	14,046	do	Front	Clear Creek.
34. Mount Sherman	14,038	do	Mosquito	Park.
35. Stewart Peak	14,032	Hayden	Sawatch	Saguache.
36. Wilson Peak	14,026	U. S. G. S.	San Miguel	San Miguel.
37. Wetterhorn Peak	14,020	do	San Juan	Ouray, Hinsdale.
38. Grizzly Mountain	14,020	do	Sawatch	Pitkin, Chaffee.
39. Sunshine Peak	14,018	do	San Juan	Hinsdale.
40. Handies Peak	14,008	do	do	Do.
41. Mount Democrat	14,000	Colo. G. S.	Mosquito	Park, Lake.
42. Pyramid Peak	14,000	U. S. G. S.	Elk Mountains	Pitkin.

Sunrise, Sunset, and Length of Day.

Date.	Sunrise.		Sunset.		Length of day.		Date.	Sunrise.		Sunset.		Length of day.	
	Hours.	Minutes.	Hours.	Minutes.	Hours.	Minutes.		Hours.	Minutes.	Hours.	Minutes.	Hours.	Minutes.
Jan. 1	7	25	4	48	9	23	July 15	4	45	7	32	14	47
Feb. 1	7	12	5	21	10	09	Aug. 1	5	00	7	18	14	18
Mar. 1	6	38	5	54	11	17	Aug. 15	5	13	7	02	13	49
Apr. 1	5	48	6	27	12	39	Sept. 1	5	29	6	36	13	07
May 1	5	03	6	57	13	54	Sept. 15	5	42	6	14	12	32
June 1	4	36	7	26	14	50	Oct. 1	5	58	5	47	11	49
June 15	4	33	7	34	15	01	Nov. 1	6	31	5	02	10	31
July 1	4	37	7	36	14	59	Dec. 1	7	04	4	39	9	35

The longest day of the year is June 21—15 hours 2 minutes.
The shortest day of the year is December 21—9 hours 21 minutes.
The time of earliest sunrise is 4.33 o'clock, from June 10 to June 20.
The time of latest sunrise is 7.25 o'clock, from January 1 to January 6.
The time of the latest sunset is 7.36 o'clock, from June 25 to July 5.
The time of the earliest sunset is 4.38 o'clock, from December 5 to December 9.

The above table applies to the Rocky Mountain National Park (latitude 40° north, longitude 105° 45′ west) and refers to standard time, a correction having been made reducing local mean time to standard time.

The above table is accurate, within two or three minutes, for any year. It refers to the rising and setting of the upper rim of the sun, and assumes that the eye is 15 feet above the level of the plane of land.

It should be noted that for points located in valleys the actual time of sunrise will be later and the actual time of sunset will be earlier, but the time of twilight will more than offset this decrease in the length of the day. This table is based on one prepared by the United States Coast and Geodetic Survey.

CURVATURE OF THE EARTH.

The curvature of the earth amounts to 8 inches in 1 mile, and increases as the square of the distance. On a perfectly level area, such as the surface of a lake, a horizontal line, if extended for 1 mile, would be 8 inches, or 0.667 foot, above the level surface; if extended for 2 miles it would be four times 0.667, or 2.667 feet, above the level surface; if extended for 3 miles it would be nine times 0.667, or 6 feet, above the level surface, and so forth, increasing as the square of the distance.

At a distance of 125 miles the curvature of the earth would amount to 15,625 times 0.667, or 10,417 feet. Therefore from Longs Peak, or any other 14,000-foot peak, one can see the surrounding country to a distance of 125 miles, provided the elevation of the surrounding

country is 4,000 feet or more above sea level. Mountain peaks can be seen at a still greater distance. The refraction of the atmosphere, which is variable, has a slight effect upon the visibility of distant objects.

The horizon is often, though incorrectly, assumed to be horizontal, and distant peaks of the same or less elevation than the point of observation appear to be higher, since they project above the horizon. This illusion is often apparent in the mountains, and accounts for the fact that it is sometimes difficult to determine by eye which is the higher of two summits, since to an observer on one the other appears higher.

BIBLIOGRAPHY.

"The Rocky Mountain National Park," a bulletin of general information, published each year and distributed free upon request to the Secretary of the Interior, Washington, D. C.

"Glimpses of our National Parks," by Robert Sterling Yard, a bulletin of general information, distributed free upon request to the Secretary of the Interior, Washington, D. C.

"The National Parks Portfolio," by Robert Sterling Yard, contains a booklet on "The Rocky Mountain National Park," with many photographic views. Can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.; price 35 cents in loose sheets, 55 cents bound in boards.

"The Geologic Story of the Rocky Mountain National Park, Colorado," by Willis T. Lee, 1917. 89 pages, with many photographic views. For sale by the Superintendent of Documents, Washington, D. C. 30 cents.

"The Book of the National Parks," by Robert Sterling Yard. Elaborately illustrated. Contains a chapter on Rocky Mountain National Park. Price $3.00 net; Scribners, 1919.

"The Top of the Continent," by Robert Sterling Yard. 244 pp. Illustrated. Rocky Mountain Park on pages 16–43. Scribners, 1917.

"Mountaineering in Colorado—The Peaks about Estes Park," by Frederick H. Chapin. Appalachian Club, Boston, 1889; also London, 1890. 168 pages. Illustrated.

"Wild Life in the Rockies," by Enos A. Mills. Houghton Mifflin, 1909. 263 pages.

"The Spell of the Rockies," by Enos A. Mills. Houghton Mifflin, 1911. 301 pages. Illustrated.

"Rocky Mountain Wonderland," by Enos A. Mills. 1915. 362 pages, map.

"In Beaver World," by Enos A. Mills. 1913. 223 pages.

"The Story of Scotch," by Enos A. Mills.

"Your National Parks," by Enos A. Mills. 532 pages. Illustrated. Rocky Mountain National Park, pages 175–189, 491–494. Price, $2.50. Houghton Mifflin, 1917.

"A Lady's Life in the Rocky Mountains," by Isabella L. Bird (Bishop). Putnam's, 1890. 296 pages. Illustrated.

"A Ragged Register," by Anna E. Dickinson.

"Kady," by Patience Stapleton.

"Going Abroad Overland," by David M. Steele. Putnam's, 1917. Rocky Mountain Park, pages 125–137.

"Mountain Trails and Parks in Colorado," by L. B. France, Denver, 1887. 224 pages.

"The Squirrels, Chipmunks, and Gophers of Colorado," by Robert B. Rockwell. Published by the Colorado Mountain Club, 1916.

"Climatology and Vegetation in Colorado," by W. W. Robbins. Published in the Botanical Gazette, vol. 49, 1910.

"The Colorado Climatic Provinces," by George A. Barker. Published in the Colorado School Journal, December, 1915.

"Colorado Climatology," by Robert E. Trimble, Bulletin 182 of the Agricultural Experiment Station of the Colorado Agricultural College, 1912.

HOTELS.

The hotels in Estes Park, Moraine Park, Allens Park, and Grand Lake, furnish comfortable accommodations and excellent meals. Many of the hotels are electric lighted; many have rooms with private baths; and several also have private cottages and tents accommodating from one to six persons. Several of the hotels have garage facilities for visitors' cars. Some of the hotels are building additions and several new hotels are being erected. The hotels are often filled during July and August, and accommodations should be secured in advance. Most of the hotels are located on patented land and the National Park Service exercises no control over the rates or operation of these hotels. The list and rates given below are offered for information, but no responsibility is assumed as to their correctness:

No.[1]	Hotel.	Post-office address.	Capacity.	Rates.
E	Estes Park	Estes Park	50	$15.00 to $25.00 per week.
E	Hupp	do	75	$16.00 to $20.00 per week.
E	Brown Tea Pot Inn	do	30	$3.50 to $6.00 per day.
E	Josephine Hotel	do		Rooms only $2.00 to $4.00 per day.
E	Josephine Cafe	do		Meals only.
1	Stanley Hotel and Manor	do	300	$28.00 to $84.00 per week.
2	Lewiston	do	50	$22.50 to $40.00 per week.
3	Elkhorn Lodge	do	200	$21.00 to $45.00 per week.
4	Crags	do	75	$17.50 to $40.00 per week.
5	Big Thompson	do	250	$21.00 to $35.00 per week.
7	Lester's	do	100	$16.00 to $22.00 per week.
8	Rockdale	do	50	$15.00 to $22.50 per week.
9	Baldpate Inn	do	30	$18.00 to $24.00 per week.
10	Lawn Lake Lodge	do	15	Meals, $0.75; lodging, $1.00.
11	Fall River Lodge	do	50	$15.00 to $30.00 per week.
12	Horseshoe Inn	do	60	$17.00 to $30.00 per week.
13	Moraine Lodge	Moraine Park	75	$16.00 to $30.00 per week.
14	Steads	do	200	$12.00 to $20.00 per week.
15	Brinwood	do	75	$14.00 to $22.50 per week.
16	Y. M. C. A. Camp	do	400	$12.50 per week.
17	Forest Inn	do	50	$20.00 per week.
18	Fern Lodge	do	50	$20.00 per week.
19	Bear Lake Lodge	do	50	$20.00 per week.
20	Sprague's	do	50	$17.50 to $20.00 per week.
21	Wigwam Tea Room	do		Lunches and teas.
22	Long's Peak Inn	Long's Peak P. O	100	$18.00 to $45.00 per week.
23	Columbines	do	64	$16.00 to $24.00 per week.
24	Hewes-Kirkwood Inn	do	80	$18.00 to $25.00 per week.
25	Timberline Cabin	do	10	Meals, $1.00; lodging, $1.25.
26	Copeland Lake Lodge	Allens Park	50	$15.00 to $18.00 per week.
27	National Park Hotel	do	50	Do.
28	Lehman's Hotel	Grand Lake	25	$2.00 a day.
28	Langles Hotel	do	20	Do.
28	Kauffman House	do	30	$2.50 a day.
28	Narwata Hotel	do	25	Do.
28	Rapids Lodge	do	50	Do.
29	Camp Wheeler ("Squeaky Bobs")	do	20	$3.00 a day.
.....	Stapps	Ward	.....	
.....	McDonald's	Monarch Lake	.....	

[1] Corresponding numbers on map opposite page 14 indicate the locations of the hotels or camps. Hotels indicated above by (E) are located in Estes Park Village.

Mrs. C. R. Berger (Estes Park) has a number of cottages and tent-houses at McCreery's ranch, furnished for light housekeeping, for rent at $75 to $135 for the season. Cottages may also be rented from C. H. Bond (Estes Park), from Hayden Bros. (Estes Park), and from Estes Park Conference (Estes Park).

The Lewiston, Hupp, Estes Park, Big Thompson, and occasionally others are open all the year. The other hotels are open during the summer season only.

LIVERY STABLES.

Horses may be obtained from:

J. Frank Grubb.
Lige Rivers (Stanley Stables).
Howard James (Elkhorn Lodge).
Longs Peak Inn.
Hewes-Kirkwood Inn.
Wiley Wood (Moraine Park Livery).
T. H. Lehmkuhe (Grand Lake).

The usual rates for a horse are $3 per day, $15 per week, and $55 per month.

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DEPARTMENT OF THE INTERIOR
FRANKLIN K. LANE, SECRETARY
NATIONAL PARK SERVICE
STEPHEN T. MATHER, DIRECTOR

MOUNTAINEERING IN THE ROCKY MOUNTAIN NATIONAL PARK PLATE I

ROCKY MOUNTAIN NATIONAL PARK
ARAPAHO NATIONAL FOREST
ARAPAHO NATIONAL FOREST
ARAPAHO NAT. FOR.
COLORADO NAT. FOR.
CONTINENTAL DIVIDE
CONTINENTAL DIVIDE
Shelter Cabin
Shelter Cabin
Shelter Cabin
Ranger Station
Public Camp Grounds
Ranger Station, Mt Bryant
LONGS PEAK
Mt Meeker
Mt Alice
Mt Craig
Mt Adams
Mt Copeland
Mt Audubon
Thunderbolt Peak
Arapaho Peak
Mt Neva
Mt Albion
Baldy Mtn
Mummy Mtn
Mt Chapin
Mt Chiquita
Mt Dunraven
Mt Dickinson
Mt Fairchild
Ypsilon Mtn
Mt Taleston
Specimen Mt
Mt Cirrus
Howard Mtn
Mt Cumulus
Mt Nimbus
Red Mtn
Mt Ida
Mt Julian
Bighorn Mtn
The Needles
Mt Richthofen
Lead Mtn
Seven Utes Mtn
Cameron Pass
Baker Mtn
Bowen Mtn
Porphyry Peaks
Mt Patterson
Niwot Mtn
Mt Ethelbert
Mt Wescott
Mt Orton
Mt Lady Washington
Battle Mtn
Estes Cone
Deer Mtn
Castle Mtn
Oldman Mtn
Estes Park
Twin Sisters
The Crags
Apiston Mtn
Pony Park
Mt Benney
Cascade Mtn
Howard Lake
Lake Verna
Lake Nanita
Lake Mills
Lake Helene
Lake Haiyaha
Lake Nokoni
Lake Hallett
Lake Odessa
Lake Dunraven
Lake Estes
Lake Irene
Lake Husted

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